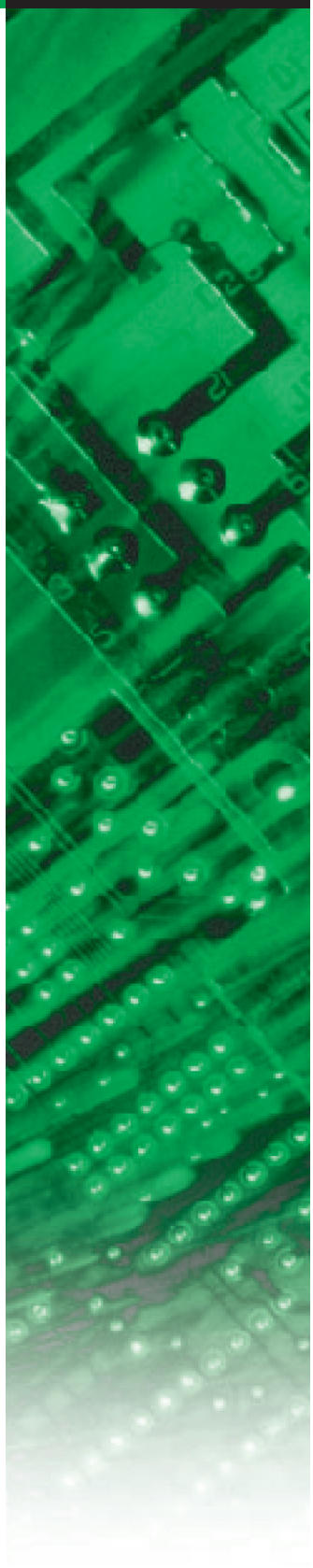
Engineered for flexibility and performance.™

TM-MDS-2006

MULTI-DIGITAL SCROLL UNITS

MDS030A(R)~MDS60A(R)
MDS080B(R)~MDS300B(R)



McQuay®
Air Conditioning

Contents

General Features 2

Nomenclature 4

Technical Parameter 7

Outlines and Dimensions 11

Wiring Diagrams 16

Installation 30

Troubleshooting 41

Servicing and Maintenance 42

Note: Installation and maintenance are to be performed only by qualified personal who are familiar with local codes and regulations, and experienced with this type of equipment.

Caution: Sharp edges and coil surfaces are a potential injury hazard. Avoid contact with them.

Warning: Moving machinery and electrical power hazards. May cause severe personal injury or death. Disconnect and lock off power before servicing equipment.

"McQuay" is a registered trademark of McQuay International. All rights reserved throughout the world.

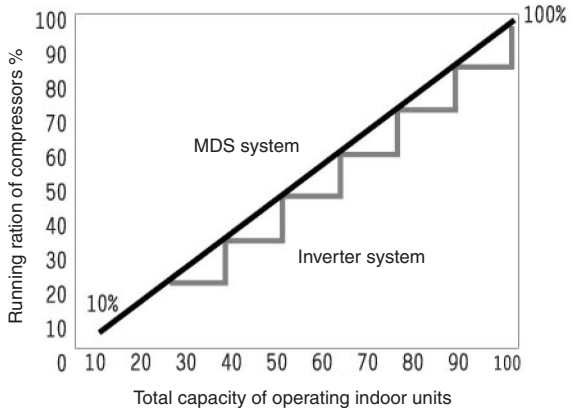
2003 McQuay International

"Bulletin illustrations cover the general appearance of McQuay International products at the time of publication and we reserve the right to make changes in design and construction at any time without notice."

1 General Features

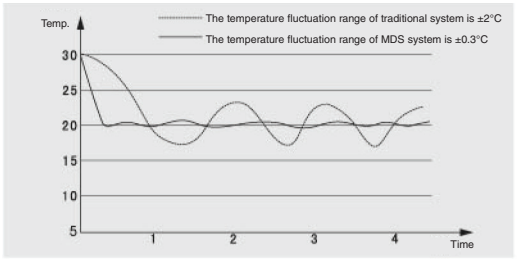
1.1 Wide Range and Stepless Capacity Modulation

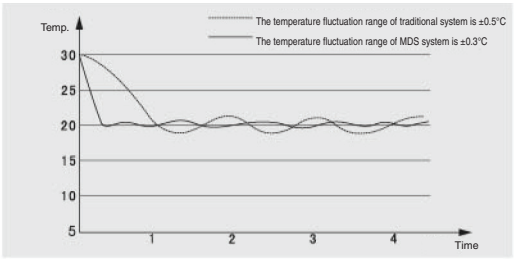
- Wide capacity modulation range (10%-100%)
- According to changing the ralio of “loading time” and “unloading time”. MDS can modulate the capacity steplessly.
- Lower the energy consumption and running cosl.



1.2 Accurate Temperature Control and Quick Response

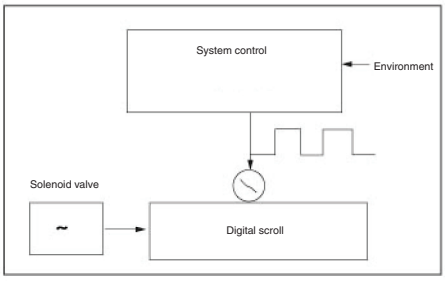
- The cooling/heating capacity of the indoor units is controlled by the EXV. which ensures the low theperature fluctuation of 0.3°C.
- Stepless capacity modulation.
- Ouick response to output the capcity (40s).





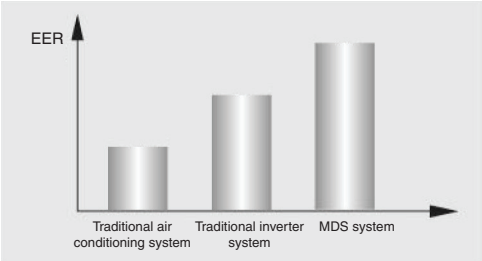
1.3 Simple, Reliable and Long Life

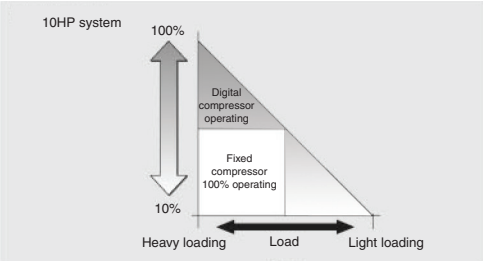
- The PWM valve has the longevity of 40 million times.
- Wide rage of capacity modulation makes sure the start/stop times reduces.
- Less components.
- No complicate inverter controller.
- The compress or has an excellent oil return performance, there is no need for the oil return circuit.
- Even the units run in 10% part load, the MDS system can be in good stage.



1.4 Energy Saving

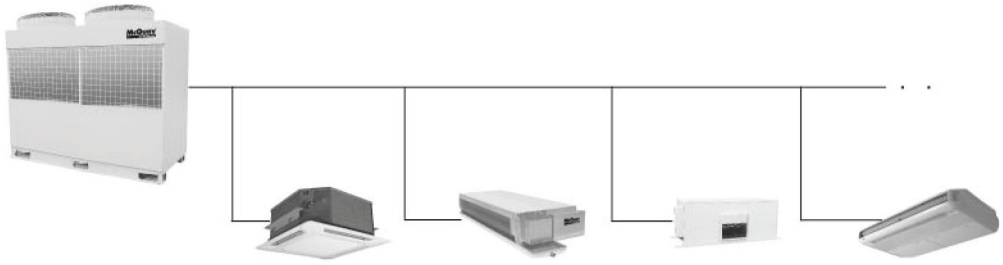
The inverter system's capacity modulation range is from 30% to 100%, while MDS system's capacity modulation range is from 10% to 100%.
Quick response to the capacity modulation.
Min. power consumption is only 10% of the full load power consumption.
Compared to the inverter system, there is no power consumption of transducer.
Compared to the nominal capacity scroll system, it can save 20% energy consumption.





1.5 Flexible Combination of Indoor Units

The max. capacity of the indoor units is as 130% as the outdoor units capacity.
The outdoor units can connect different numbers of indoor units according to the outdoor units capacity.
One outdoor unit can be connected up to 48 indoor units.
Various types of indoor units are available.
There are various indoor units for option: concealed exposed, ceiling concealed, high static pressure fan coil and ceiling exposed/floor standing.



1.6 Long Accessory Pipe Connection Design

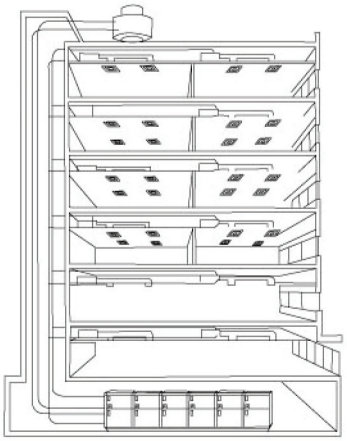
Max. accessory pipe length is 15m (12HP-30HP), max. height is 50m (8HP—30HP).

	Max. accessory pipe total length (m)	Max. accessory pipe length (m)	Height	
			OT	IT
12-30HP	350	150	50	40
10HP	250	125	50	40
8HP	250	125	50	40
6HP	150	70	30	30
5HP	150	70	30	30
4HP	150	70	20	20
3HP	100	50	20	20

Note:
OT means the outdoor unit is above the indoor unit,
IT means the outdoor unit is below the indoor unit.

1.7 Space Saving

- Compared to scale size central air conditioning, MDS system is high centralized, no need for special equipment room to save more space, and bring more benefits.



Traditional central air conditioning

MDS system

1.8 Easy to Install and Simple to Maintain

Easy Installation

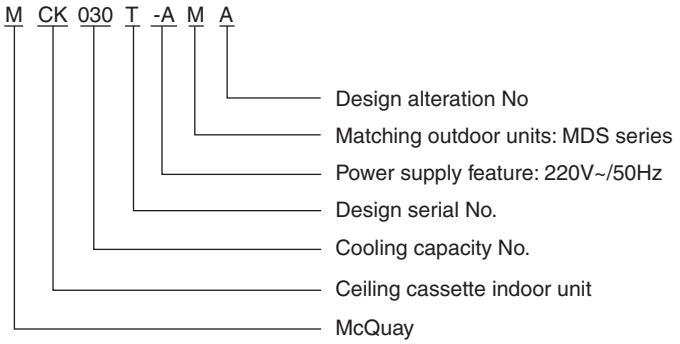
- MDS system is simple and reliable, and outdoor unit can be connected with several indoor units, so it is easy for installation.
- MDS system can be installed by stages, which is good to both new projects and renovation projects.
- Compared to the chilled water system, MDS system is much simple and there is no need for expert people to maintain it.

No Need for Special Maintenance

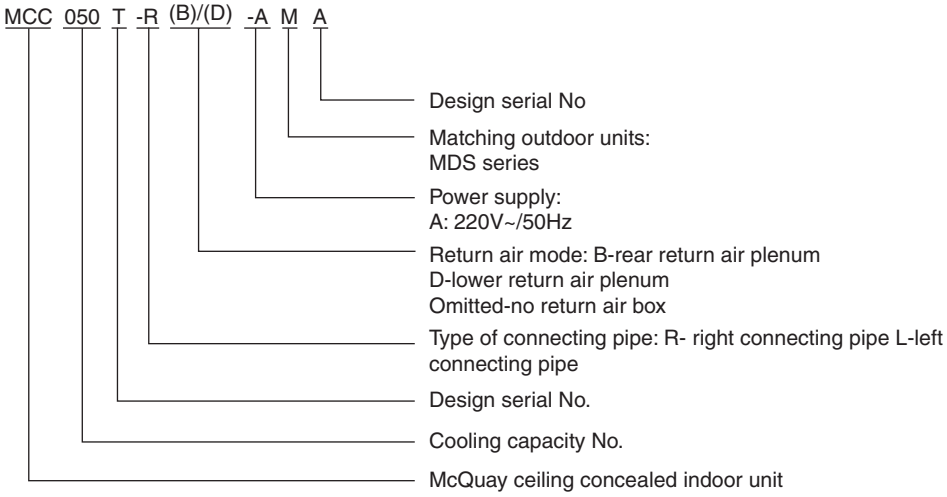
- It has only simple refrigerant piping system, no complex maintenance;
- Compared to the water-cooled system, MDS system is with no water system, no pipe cleaning, without maintenance for water system control design; so MDS system is much simple and there is no need for expert people to manage and maintain it.

Nomenclature

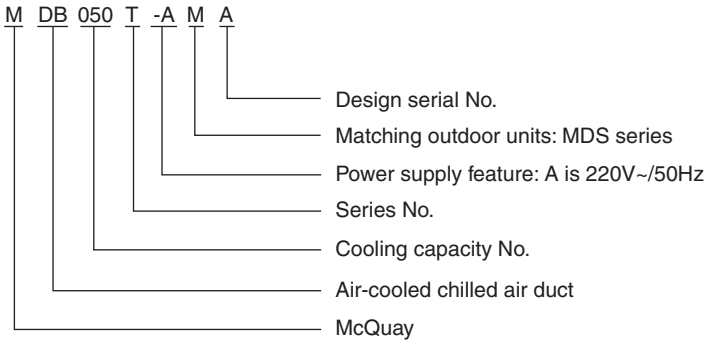
2.1 Indoor Unit: Ceiling Cassette



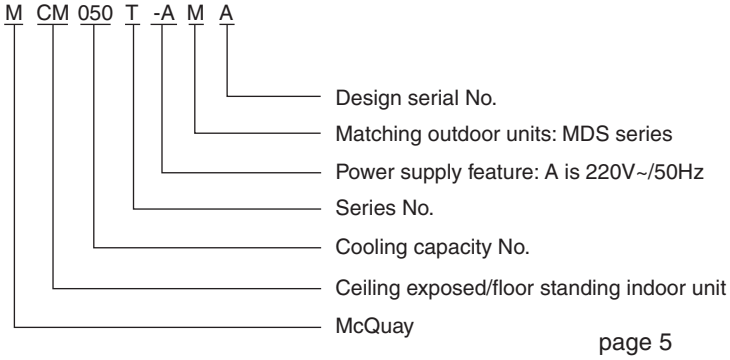
2.2 Indoor Unit: Ceiling Concealed


MCC 050 T -R (B)/(D) -A M A
Design serial No
Matching outdoor units:
MDS series
Power supply:
A: 220V~/50Hz
Return air mode: B-rear return air plenum
D-lower return air plenum
Omitted-no return air box
Type of connecting pipe: R- right connecting pipe L-left
connecting pipe
Design serial No.
Cooling capacity No.
McQuay ceiling concealed indoor unit

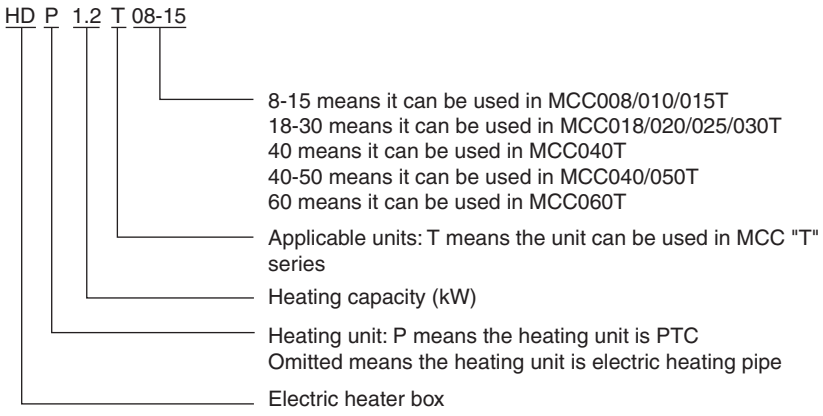
2.3 Indoor Unit: Air-cooled Chilled Air Duct



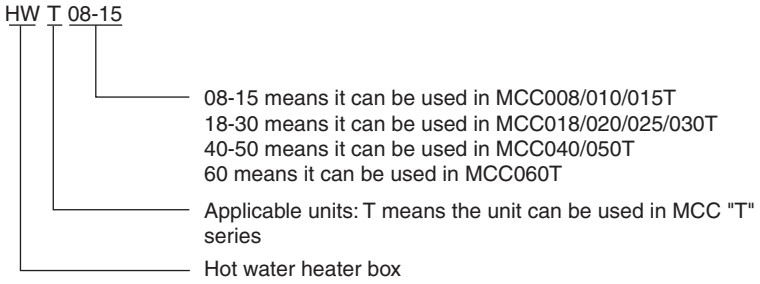
2.4 Indoor Unit: Ceiling Exposed/Floor Standing


M CM 050 T -A M A
Design serial No.
Matching outdoor units: MDS series
Power supply feature: A is 220V~/50Hz
Series No.
Cooling capacity No.
Ceiling exposed/floor standing indoor unit
McQuay

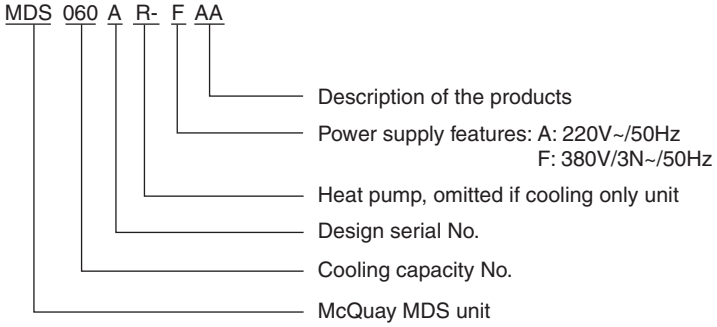
2.5 Electric Heater Box


HD P 1.2 T 08-15
8-15 means it can be used in MCC008/010/015T
18-30 means it can be used in MCC018/020/025/030T
40 means it can be used in MCC040T
40-50 means it can be used in MCC040/050T
60 means it can be used in MCC060T
Applicable units: T means the unit can be used in MCC "T" series
Heating capacity (kW)
Heating unit: P means the heating unit is PTC
Omitted means the heating unit is electric heating pipe
Electric heater box

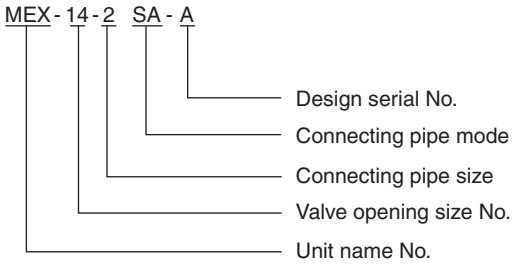
2.6 Hot Water Heater Box


HW T 08-15
08-15 means it can be used in MCC008/010/015T
18-30 means it can be used in MCC018/020/025/030T
40-50 means it can be used in MCC040/050T
60 means it can be used in MCC060T
Applicable units: T means the unit can be used in MCC "T" series
Hot water heater box

2.7 MDS Unit


MDS 060 A R- F AA
Description of the products
Power supply features: A: 220V~/50Hz
F: 380V/3N~/50Hz
Heat pump, omitted if cooling only unit
Design serial No.
Cooling capacity No.
McQuay MDS unit

MEX Throttle Box Nomenclature:



Unit name no.	MEX: McQuay throttle box (one expansion valve)
Valve opening size no.	14: Nominal diameter value (mm)*10
Connecting pipe size	2: 1/4 inch
	3: 3/8 inch
	4: 1/2 inch
Connecting pipe mode	SA: Flare fitting & nipple joint
Design serial no.	A: Primary design

3 Technical Parameter

MDS030A(R)~MDS060A(R)

Model		MDS030A	MDS030AR	MDS040A	MDS040AR	MDS050A	MDS050AR	MDS060A	MDS060AR
Cooling(kW)		8.5	8.5	10.0	10.0	12.5	12.5	14.5	14.5
Heating(kW)		-	9.0	-	11.5	-	13.5	-	16.5
Power		220V~/50Hz							
Noise dB(A)		59		59		59		60	
W×D×H(mm)		840×408×900		1058×430×1044		1058×430×1044		1058×430×1247	
Weight(kg)		82	85	112	115	117	120	123	130
Power consumption in cooling(kW)		3.0	3.0	3.5	3.6	4.4	4.4	5.0	5.0
Ampere in cooling(A)		13.6	13.6	15.9	15.9	20	20	22.8	22.8
Power consumption in cooling(kW)		-	2.5	-	3.4	-	4.2	-	4.2
Ampere in cooling(A)		-	11.4	-	13.5	-	19	-	20.3
Refrigerant		R22							
Connecting	Gas	Flare fitting and nipple joint connecting							
	Liquid	Flare fitting and nipple joint connecting							
LiquidΦ(mm(in))		9.52(3/8)		9.52(3/8)		9.52(3/8)		9.52(3/8)	
GasΦ(mm(in))		15.88(5/8)		19.05(3/4)		19.05(3/4)		19.05(3/4)	

Model		MDS050A	MDS050AR	MDS060A	MDS060AR
Cooling(kW)		12.5	12.5	15	15
Heating(kW)		-	13.5	-	17
Power		380V/3N~/50Hz			
Noise dB(A)		59		60	
W×D×H(mm)		1058×430×1044		1058×430×1247	
Weight(kg)		117	120	123	130
Power consumption in cooling(kW)		4.4	4.4	5.0	5.0
Ampere in cooling(A)		8.4	8.4	9.6	9.6
Power consumption in cooling(kW)		-	4.2	-	4.23
Ampere in cooling(A)		-	8.0	-	8.8
Refrigerant		R22			
Connecting	Gas	Flare fitting and nipple joint connecting			
	Liquid	Flare fitting and nipple joint connecting			
LiquidΦ(mm(in))		9.52(3/8)			
GasΦ(mm(in))		19.05(3/4)			

MDS080B(R)~MDS300B(R)

Model		MDS080B	MDS080BR	MDS100B	MDS100BR	MDS120B	MDS120BR	MDS150B	MDS150BR
Cooling(kW)		24.5	24.5	28.0	28.0	32.5	32.5	40.0	40.0
Heating(kW)		-	26.0	-	30.0	-	34.0	-	43.0
Power		380V/3N~/50Hz							
Noise dB(A)		62		64		66		67	
W×D×H(mm)		990×840×1840						1290×840×1840	
Weight(kg)		275	290	285	300	290	305	355	370
Power consumption in cooling(kW)		7.5	7.5	8.5	8.5	9.8	9.8	12.9	12.9
Ampere in cooling (A)		14.6	14.6	16.8	16.8	18.8	18.8	23.1	23.1
Power consumption in cooling(kW)		-	7.2	-	8.3	-	9.0	-	11.1
Ampere in cooling (A)		-	13.6	-	15.7	-	16.7	-	22.6
Refrigerant		R22							
Connecting	Gas	Welding flange							
	Liquid	Expanded copper tube							
LiquidΦ(mm(in))		12.7(1/2)				15.88(5/8)			
GasΦ(mm(in))		28.6(1 1/8)						34.9(1 3/8)	
Max. indoors-quantity		13		16		16		20	

Model		MDS180B	MDS180BR	MDS200B	MDS200BR	MDS220B	MDS220BR	MDS240B	MDS240BR
Cooling(kW)		47.5	47.5	50.0	50.0	55.0	55.0	65.0	65.0
Heating(kW)		-	50.0	-	53.0	-	58.0	-	68.0
Power		380V/3N~/50Hz							
Noise dB(A)		66		66		66		68	
W×D×H(mm)		1990×840×1840							
Weight (kg)		520	550	560	590	560	590	570	600
Power consumption in cooling(kW)		14.1	14.1	15.2	15.2	16.7	16.7	19.8	19.8
Ampere in cooling (A)		28.2	28.2	31.1	31.1	32.7	32.7	38.5	38.5
Power consumption in cooling(kW)		-	13.2	-	14.7	-	16.2	-	18.5
Ampere in cooling(A)		-	27.1	-	29.4	-	31.0	-	33.8
Refrigerant		R22							
Connecting	Gas	Welding flange							
	Liquid	Expanded copper tube							
LiquidΦ(mm(in))		15.88(5/8)				19.05(3/4)			
GasΦ(mm(in))		34.9(1 3/8)				38.1(1 1/2)			
Max. indoors-quantity		24		24		24		24	

Model		MDS260B	MDS260BR	MDS280B	MDS280BR	MDS300B	MDS300BR
Cooling(kW)		70.0	70.0	75.0	75.0	80.0	80.0
Heating(kW)		-	75.0	-	80.0	-	85.0
Power		380V/3N~/50Hz					
Noise dB(A)		68		69		69	
W×D×H(mm)		2280×840×1840		2580×840×1840			
Weight(kg)		645	675	710	740	710	740
Power consumption in cooling(kW)		21.3	21.3	22.8	22.8	26.2	26.2
Ampere in cooling(A)		40.0	40.0	42.5	42.5	46.5	46.5
Power consumption in cooling(kW)		-	20.9	-	22.0	-	23.6
Ampere in cooling(A)		-	37.2	-	41.0	-	43.1
Refrigerant		R22					
Connecting	Gas	Welding flange					
	Liquid	Expanded copper tube					
LiquidΦ(mm(in))		19.05(3/4)					
GasΦ(mm(in))		41.3(1 5/8)					
Max. indoors-quantity		32		32		32	

Notes:

1. Cooling condition: Indoor D/W bulb Temp. 27/19ºC, outdoor temperature: D/W bulb Temp. 35/24ºC.
2. Heating condition: Indoor D/W bulb Temp. 20/15ºC, outdoor temperature: D/W bulb Temp. 7/6ºC.

Ceiling Concealed Indoor Units

Model		MCC008T	MCC010T	MCC015T	MCC018T	MCC020T
Cooling capacity(W)		2000	2500	3650	4500	5600
Heating capacity(W)		2200	2600	3700	4700	6100
Power		220V~/50Hz				
Noise dB(A)		31		34	35	
W×D×H(mm)		1030×469×220			1290×490×250	
Weight(kg)		22			25	
Power input(W)		47		81	82	
Fan number		2				
Air flow(H: m³/h)		450		580	800	
ESP(Pa)		15(0/30/50)				
DrainΦ(mm(in))		19.05(3/4)				
Protection		Anti-freezing				
Connection	Gas	Expanded copper tube				
	Liquid	Expanded copper tube				
LiquidΦ(mm(in))		6.35(1/4)			9.52(3/8)	
GasΦ(mm(in))		9.52(3/8)		12.7(1/2)	15.88(5/8)	

Model		MCC025T	MCC030T	MCC040T	MCC050T	MCC060T
Cooling capacity(W)		6500	7800	10600	12400	14400
Heating capacity(W)		7400	8900	11600	14500	17300
Power		220V~/50Hz				
Noise dB(A)		37	42	47		48
W×D×H(mm)		1290×490×250		1640×490×250		1900×490×250
Weight(kg)		27	28	39		45
Power input(W)		123	158	276		280
Fan number		2		3		4
Air flow(H : m³/h)		960	1200	1900		2100
ESP(Pa)		15(0/30/50)	30(15/50/70)	50(15/30/70)		
DrainΦ(mm(in))		19.05(3/4")				
Protection		Anti-freezing				
Connection	Gas	Expanded copper tube				
	Liquid	Expanded copper tube				
LiquidΦ(mm(in))		9.52(3/8")				
GasΦ(mm(in))		15.88(5/8")		19.05(3/4")		

Notes:

1. Cooling condition: Indoor D/W bulb Temp. 27/19ºC, outdoor temperature: D/W bulb Temp. 35/24ºC.
2. Heating condition: Indoor D/W bulb Temp. 20/15ºC, outdoor temperature: D/W bulb Temp. 7/6ºC.

Ceiling Duct Indoor Unit

Model		MDB050T	MDB060T
Cooling capacity(W)		12500	14000
Heating capacity(W)		14000	15500
Power		220V~/50Hz	
Noise dB(A)		58	60
W×D×H(mm)		1230×910×350	1430×910×350
Weight(kg)		69	75
Power consumption(W)		615	790
Fan number		1	
Air flow(H m³/h)		2250	3000
ESP(Pa)		100	
DrainΦ(mm(in))		19.05(3/4)	
Protection		Anti-freezing, overload	
Connection	Gas	Expanded copper tube	
	Liquid	Expanded copper tube	
LiquidΦ(mm(in))		9.52(3/8)	
GasΦ(mm(in))		19.05(3/4)	

Notes:

1. Cooling condition: Indoor D/W bulb Temp. 27/19ºC, outdoor temperature: D/W bulb Temp. 35/24ºC.
2. Heating condition: Indoor D/W bulb Temp. 20/15ºC, outdoor temperature: D/W bulb Temp. 7/6ºC.

Vertical Floor Standing & Horizontal Ceiling Mounted Indoor Unit

Model		MCM020T	MCM030T	MCM050T
Cooling capacity(W)		5800	7500	12500
Heating capacity(W)		5800	8000	13500
Power		220V~/50Hz		
Noise dB(A)		48	50	52
W×D×H(mm)		1214×670×214	1214×670×249	1714×670×249
Weight(kg)		39	44	44
Power consumption(W)		81	116	161
Number of fan		2	3	4
Air flow(H m³/h)		1100	1300	1850
DrainΦ(mm(in))		20.5(4/5)		
Protection		Anti-freezing, overheat		
Connection	Gas	Expanded copper tube		
	Liquid	Expanded copper tube		
LiquidΦ(mm(in))		9.52(3/8)		9.52(3/8)
GasΦ(mm(in))		15.88(5/8)		19.05(3/4)

Notes:

1. Cooling condition: Indoor D/W bulb Temp. 27/19ºC, outdoor temperature: D/W bulb Temp. 35/24ºC.
2. Heating condition: Indoor D/W bulb Temp. 20/15ºC, outdoor temperature: D/W bulb Temp. 7/6ºC.

Ceiling Cassette Indoor Unit

Model		MCK010T	MCK015T	MCK018T	MCK020T	MCK025T	MCK030T	MCK040T	MCK050T
Cooling capacity(W)		2800	3600	4500	5400	6500	7500	10000	12500
Heating capacity(W)		3200	3900	5000	5900	7200	8000	11000	13500
Power		220V~/50Hz							
Noise dB(A)		29	32	38	39	42	45	45	48
W×D×H(mm)		930×930×278				930×930×363			
Weight(kg)		26	26	30	30	39.5	39.5	39.5	39.5
Power consumption(W)		26	34	36	42	72	84	110	140
Number of fan		1							
Air flow(H m^3/h)		520	600	650	700	1200	1300	1500	1650
DrainΦ(mm(in))		20.5(4/5)							
Protection		Anti-freezing, overheat							
Connection	Gas	Expanded copper tube							
	Liquid	Expanded copper tube							
LiquidΦ(mm(in))		6.35(1/4)		9.52(3/8)				9.52(3/8)	
GasΦ(mm(in))		9.52(3/8)	12.7(1/2)	15.88(5/8)				19.05(3/4)	

Notes:

1. Cooling condition: Indoor D/W bulb Temp. 27/19ºC, outdoor temperature: D/W bulb Temp. 35/24ºC.
2. Heating condition: Indoor D/W bulb Temp. 20/15ºC, outdoor temperature: D/W bulb Temp. 7/6ºC.

Accessories: Heating Coil

Model	HWT08-15			HWT18-30				HWT40-50		HWT60
Indoor unit	MCC008T	MCC010T	MCC015T	MCC018T	MCC020T	MCC025T	MCC030T	MCC040T	MCC050T	MCC060T
Heating(kW)	3600	3600	4200	6300	6300	7200	8000	12000	12000	13500
Water flow(m^3/h)	0.31	0.31	0.36	0.54	0.54	0.60	0.67	0.99	0.99	1.11
Air pressure drop(Pa)	7	7	13	12	12	17	23	31	31	26
Water pressure drop(kPa)	2	2	3	6	6	7	9	11	11	17
Net weight(kg)	9.5	9.5	9.5	11	11	11	11	14	14	15
Rows	2	2	2	2	2	2	2	2	2	2

Note:

1. Testing condition: 60ºC entering water, 50ºC leaving water.

Accessories: Electrical Heater

Model	Model of heater	Capacity(kW)	Power	Ampere(A)	Intersection surface(mm^2)
MCC008T/010T/015T	HDP1.2T08-15	1.2	220V~/50Hz	5.5	1.5
	HDP2.4T08-15	2.4	220V~/50Hz	11	2.5
MCC018T/020T/025T/030T	HDP2.4T18-30	2.4	220V~/50Hz	11	2.5
	HDP3.6T18-30	3.6	220V~/50Hz	16.5	4
MCC040T	HDP2.4T40	2.4	220V~/50Hz	11	2.5
	HDP3.6T40	3.6	220V~/50Hz	16.5	4
MCC040T/050T	HDP4.8T40-50	4.8	380V/3N~/50Hz	10.5	2.5
	HDP7.2T40-50	7.2	380V/3N~/50Hz	16	4
MCC060T	HDP5.4T60	5.4	380V/3N~/50Hz	12	4
	HDP7.2T60	7.2	380V/3N~/50Hz	16	4
	HDP10.8T60	10.8	380V/3N~/50Hz	23.5	4

Notes:

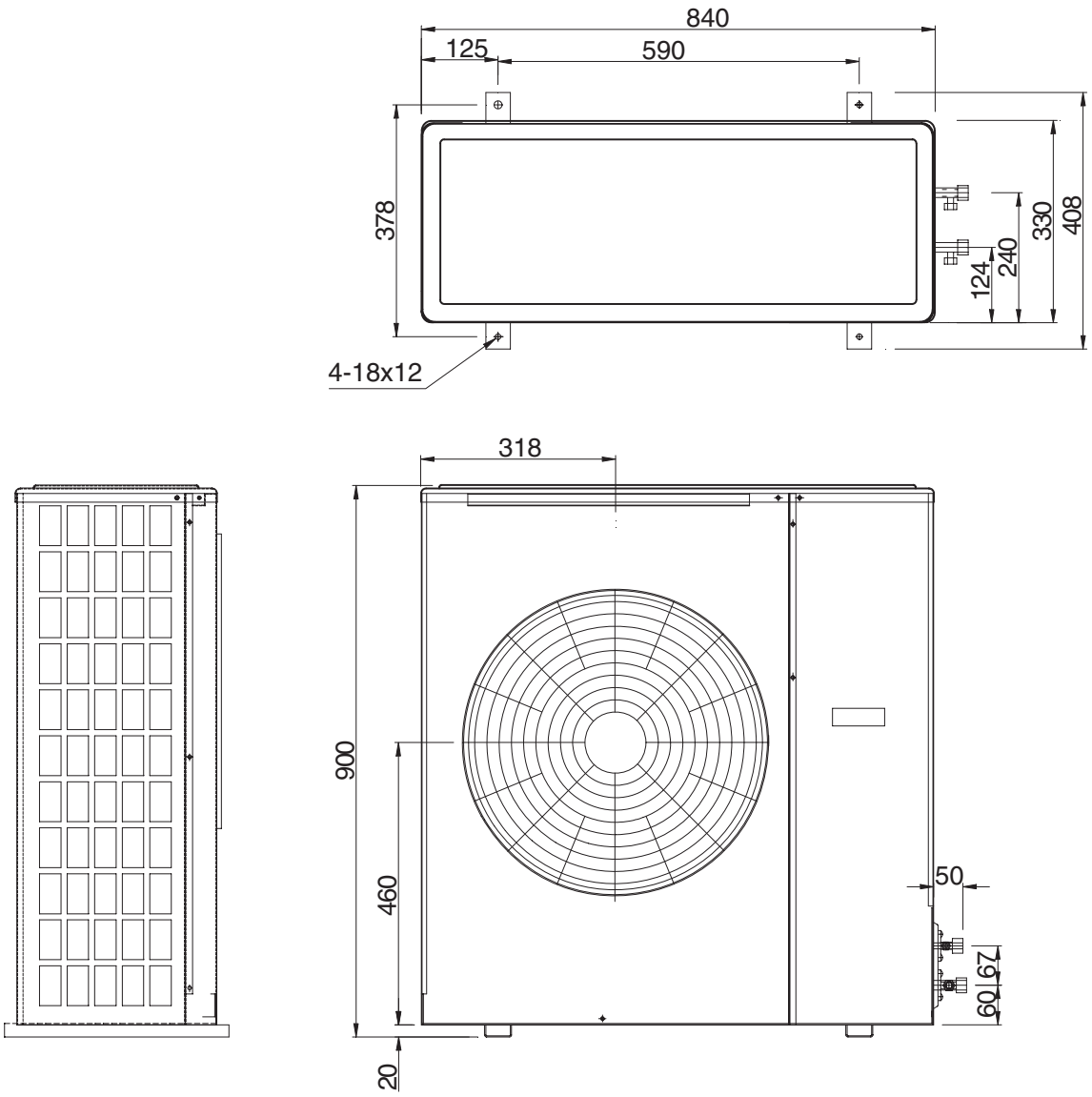
1. Electrical heater power shall be supplied independently, and intersection size shall meet the requirement of cable.
2. Electrical heater shall fix with indoor units tightly.
3. To select the right fuse to couple with electrical heater.
4. Earth connecting is a must for electrical heater.

4 Outlines and Dimensions

4.1 Outlines & Dimension of Outdoor Unit

MDS030A(R)

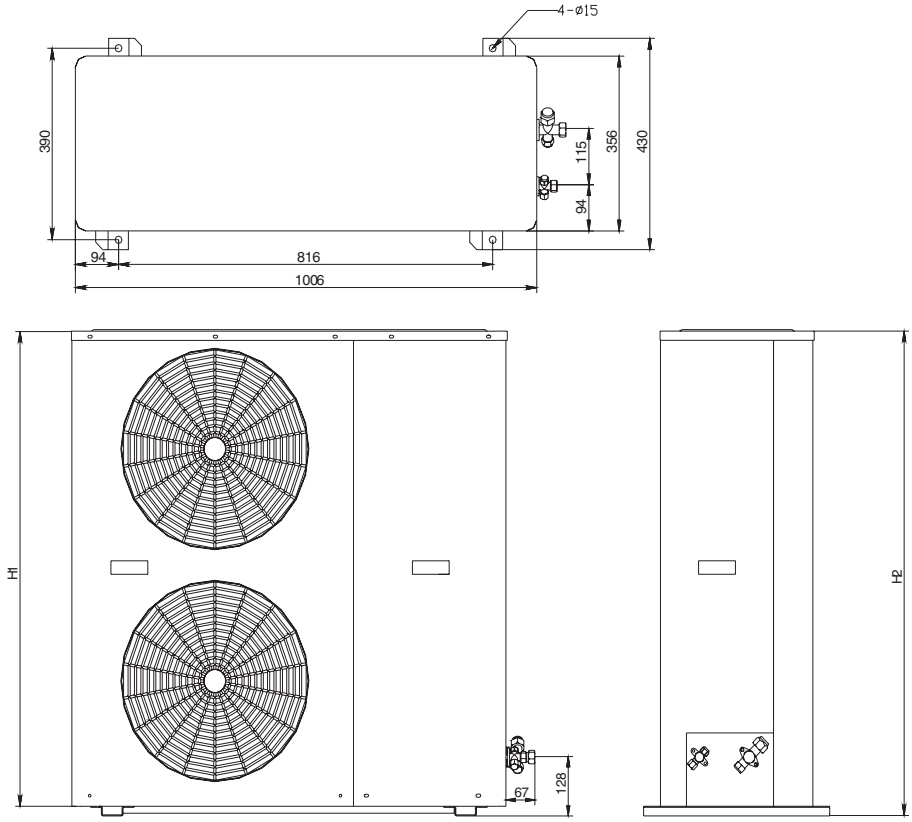
Unit: mm



MDS040A(R)/MDS050A(R)/MDS060A(R)

Unit: mm

Model	H1	H2
MDS040A(R)	1024	1044
MDS050A(R)	1024	1044
MDS060A(R)	1222	1242



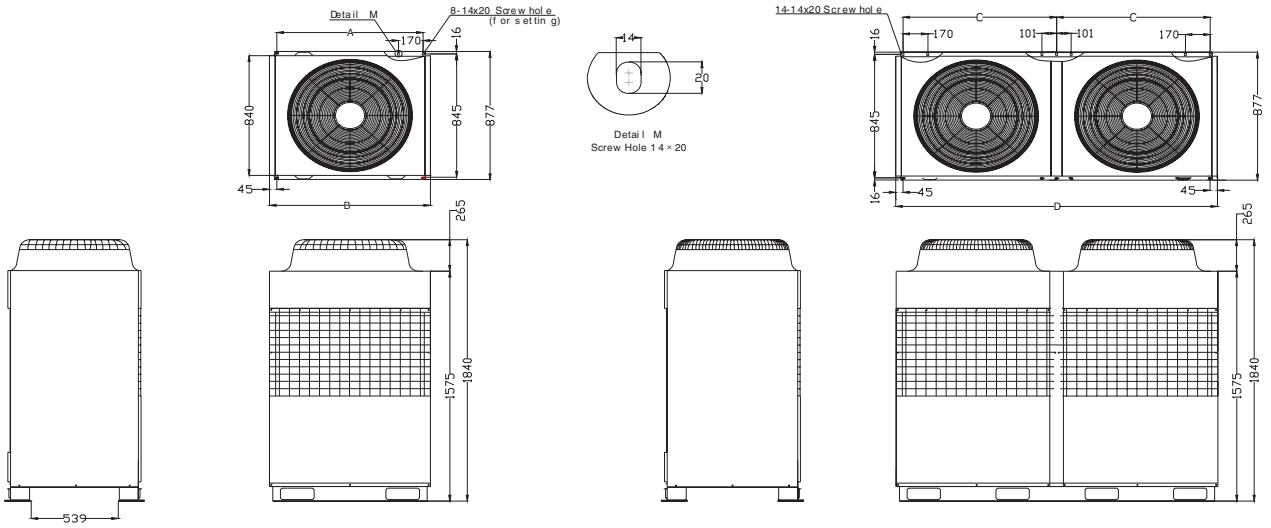
MDS080,100,120,150,180,200,220,240,260,280,300B(R)

Unit: mm

Model	A	B	Model	A	B	Model	C	D
MDS080/100/120B(R)/ 120B(R)M	900	990	MDS150B(R)/130B(R)S/ 150B(R)M/150B(R)S	1200	1290	MDS180/200/220/ 240B(R)	950	1990

MDS260/280/300B(R)are combined units, made up by a master unit and a slave unit

Combined unit	MDS260B(R)	MDS280B(R)	MDS300B(R)
Master unit + Slave unit	MDS120B(R)M+MDS150B(R)S	MDS150B(R)M+MDS130B(R)S	MDS150B(R)M+MDS150B(R)S
D	990+10+1290	1290+10+1290	1290+10+1290

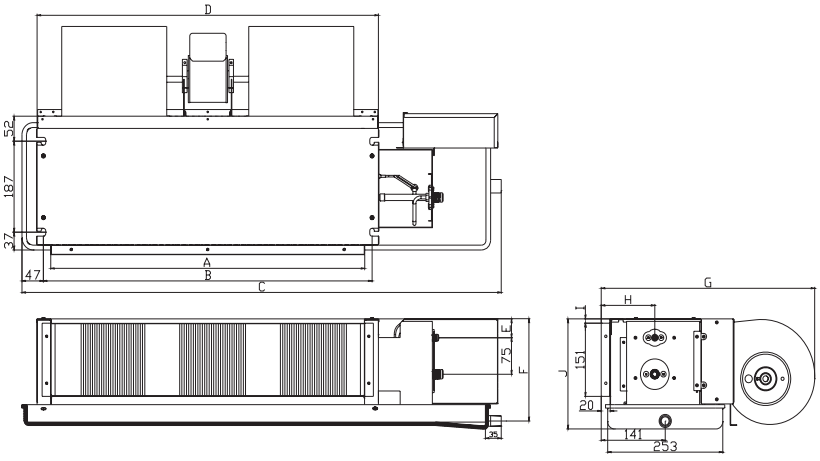


4.2 Outlines & Dimension of Indoor Unit

MCC008, 010, 015, 018, 020, 025, 030, 040, 050, 060T

Unit: mm

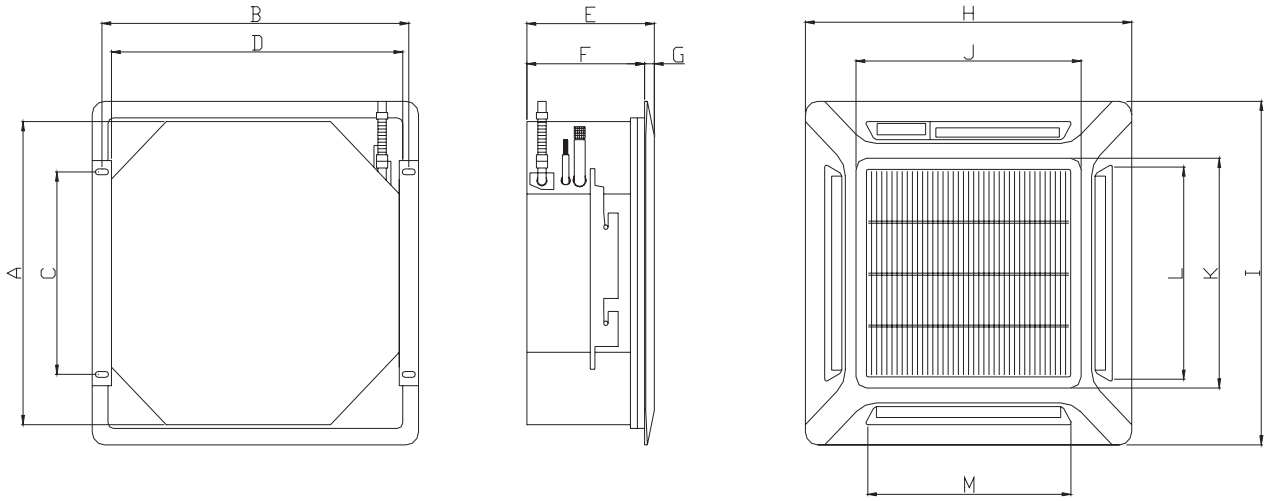
Model	A	B	C	D	E	F	G	H	I	J	No. of fans
MCC008T	690	722	1054	751	39	210	469	118	9	220	2
MCC010T	690	722	1054	751	39	210	469	118	9	220	2
MCC015T	690	722	1054	751	39	210	469	118	9	220	2
MCC018T	690	722	1054	751	39	210	469	118	9	220	2
MCC020T	950	981	1314	1005	32	248	490	81	14	251	2
MCC025T	950	981	1314	1005	32	248	490	81	14	251	2
MCC030T	950	981	1314	1005	32	248	490	81	14	251	2
MCC040T	1300	1331	1664	1355	32	248/	490	21	14	251	3
MCC050T	1300	1331	1664	1355	32	248/	490	21	14	251	3
MCC060T	1560	1591	1924	1615	32	248	490	81	14	251	4



MCK010,015,018,020,025,030,040,050T

Unit: mm

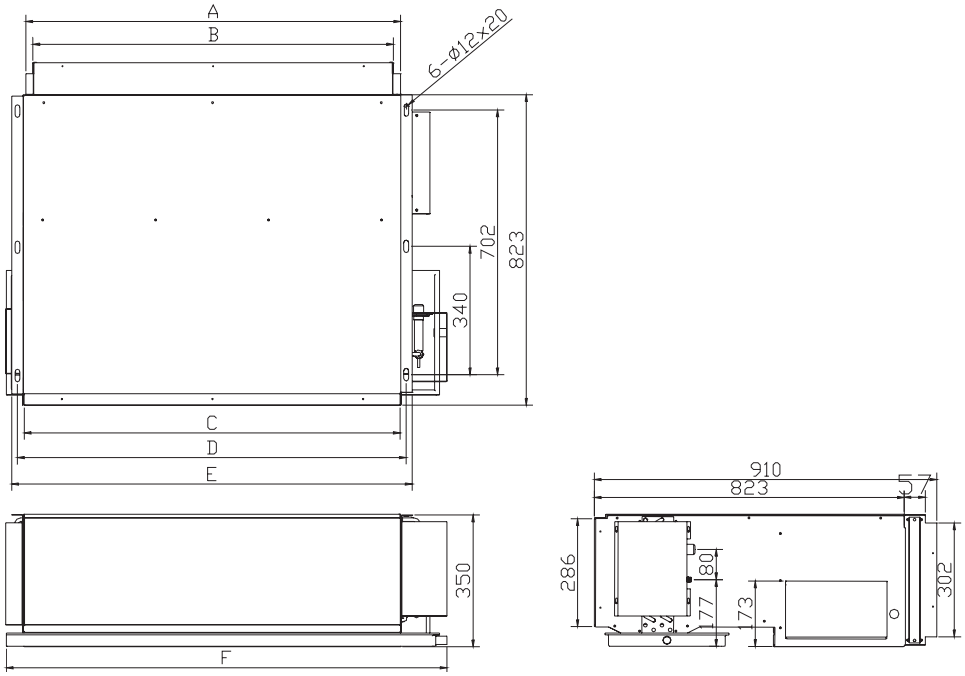
Model	A	B	C	D	E	F	G	H	I	J	K	L	M
MCK010/015/018/020T	820	875	548	820	278	250	28	930	930	642	622	555	555
MCK025/030/040/050T	820	875	548	820	363	335	28	930	930	642	622	555	555



MDB050, 060T

Unit: mm

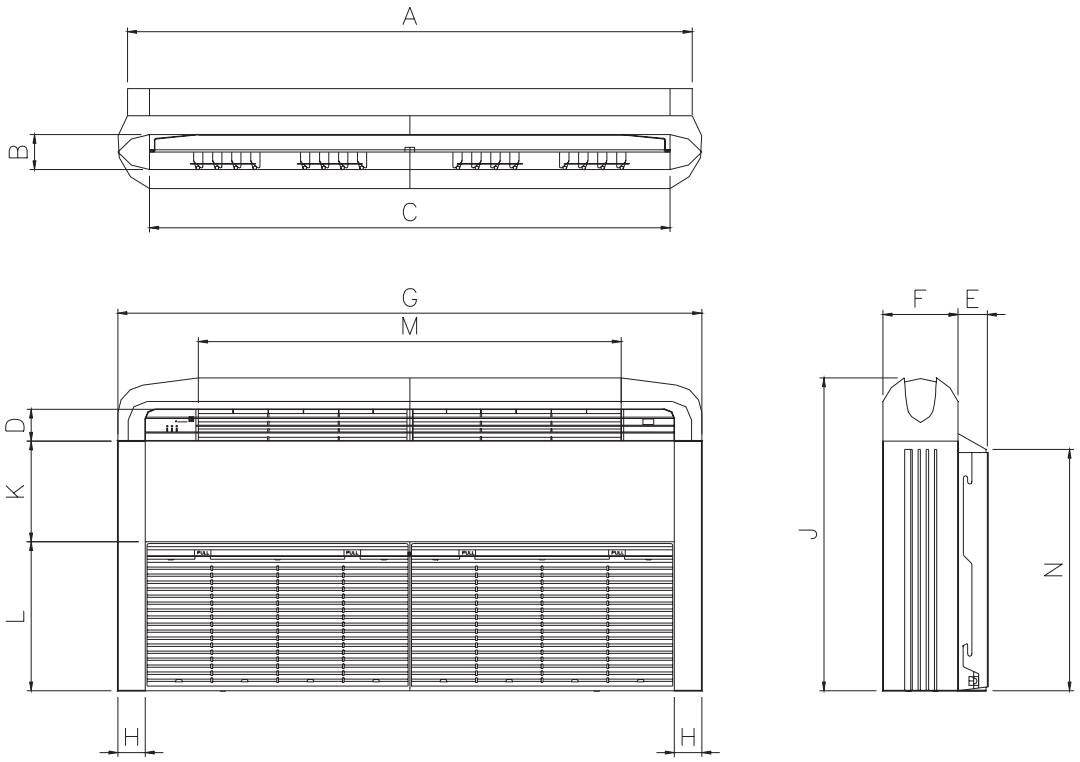
Model	A	B	C	D	E	F	Gas pipe	Liquid pipe
MDB050T	995	957	998	1032	1063	1230	Φ19.05	Φ9. 52
MDB060T	1195	1157	1198	1232	1263	1430	Φ19.05	Φ9. 52



MCM020, 030, 050T

Unit: mm

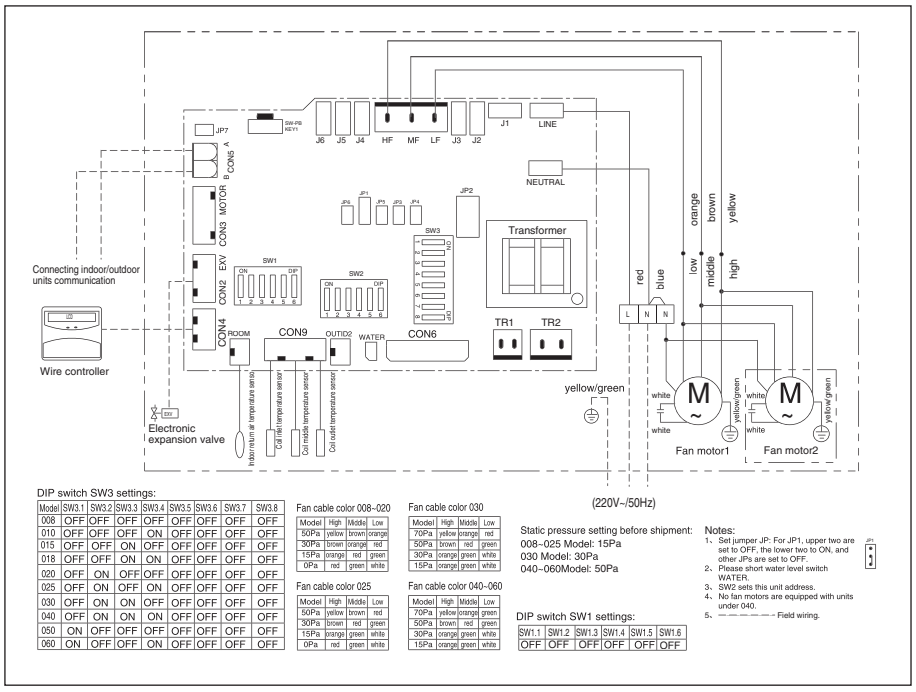
Model	A	B	C	D	E	F	G	H	J	K	L	M	N
MCM020T	1174	75	1082	68	58	156	1214	57	670	216	319	879	517
MCM030T	1174	75	1082	68	93	156	1214	57	670	216	319	879	517
MCM050T	1674	75	1582	68	93	156	1714	57	670	216	319	1379	517



5 Wiring Diagram

5.1 Wiring Diagram of Indoor Units

Model: MCC008/010/015/018/020/025/030/040/050/060T



DIP switch SW3 settings:

Model	SW3.1	SW3.2	SW3.3	SW3.4	SW3.5	SW3.6	SW3.7	SW3.8
008	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
010	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
015	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
018	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
020	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
025	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
030	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
040	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
050	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
060	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF

Fan cable color 008~020

Model	High	Middle	Low
50Pa	yellow	brown	orange
30Pa	brown	orange	red
15Pa	orange	red	green
0Pa	red	green	white

Fan cable color 025

Model	High	Middle	Low
50Pa	yellow	brown	red
30Pa	brown	red	green
15Pa	orange	green	white
0Pa	red	green	white

Fan cable color 030

Model	High	Middle	Low
70Pa	yellow	orange	red
50Pa	brown	red	green
30Pa	orange	green	white
15Pa	orange	green	white

Fan cable color 040~060

Model	High	Middle	Low
70Pa	yellow	orange	green
50Pa	brown	red	green
30Pa	orange	green	white
15Pa	orange	green	white

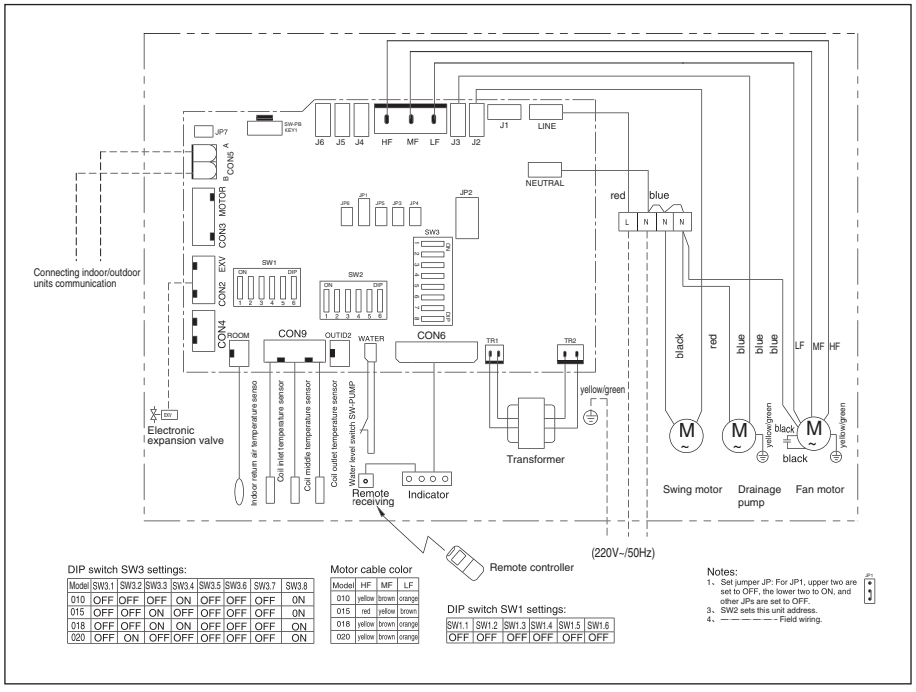
Static pressure setting before shipment:
008~025 Model: 15Pa
030 Model: 30Pa
040~060Model: 50Pa

DIP switch SW1 settings:

SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
OFF	OFF	OFF	OFF	OFF	OFF

Notes:
1、Set jumper JP: For JP1, upper two are set to OFF, the lower two to ON, and other JPs are set to OFF.
2、Please short water level switch WATER.
3、SW2 sets this unit address.
4、No fan motors are equipped with units under 040.
5、– – – – – – – – Field wiring.

Model: MCK010/015/018/020T



DIP switch SW3 settings:

Model	SW3.1	SW3.2	SW3.3	SW3.4	SW3.5	SW3.6	SW3.7	SW3.8
010	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
015	OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
018	OFF	OFF	ON	ON	OFF	OFF	OFF	ON
020	OFF	ON	OFF	OFF	OFF	OFF	OFF	ON

Motor cable color

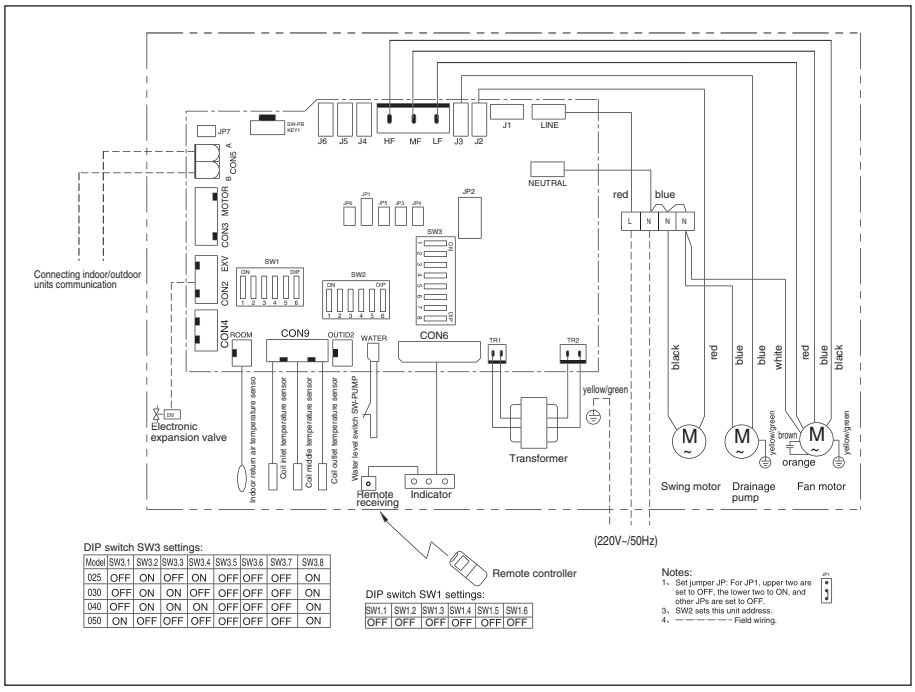
Model	HF	MF	LF
010	yellow	brown	orange
015	red	yellow	brown
018	yellow	brown	orange
020	yellow	brown	orange

DIP switch SW1 settings:

SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
OFF	OFF	OFF	OFF	OFF	OFF

Notes:
1、Set jumper JP: For JP1, upper two are set to OFF, the lower two to ON, and other JPs are set to OFF.
3、SW2 sets this unit address.
4、– – – – – – – – Field wiring.

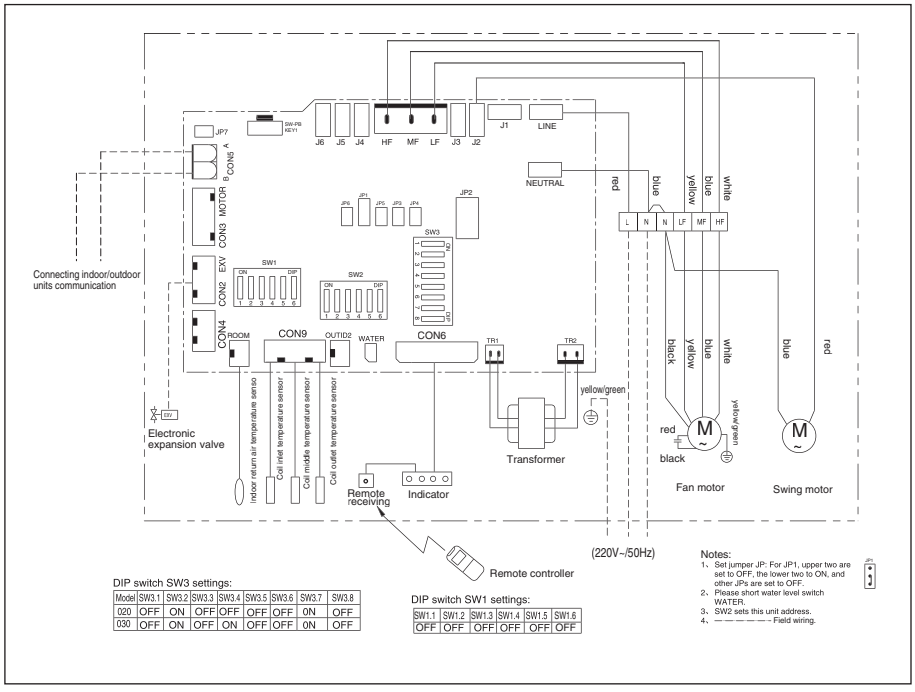
Model: MCK025/030/040/050T



Model	SW3.1	SW3.2	SW3.3	SW3.4	SW3.5	SW3.6	SW3.7	SW3.8
025	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
030	OFF	ON	ON	OFF	OFF	OFF	OFF	ON
040	OFF	ON	ON	ON	OFF	OFF	OFF	ON
050	ON	OFF	OFF	OFF	OFF	OFF	OFF	ON

SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
OFF	OFF	OFF	OFF	OFF	OFF

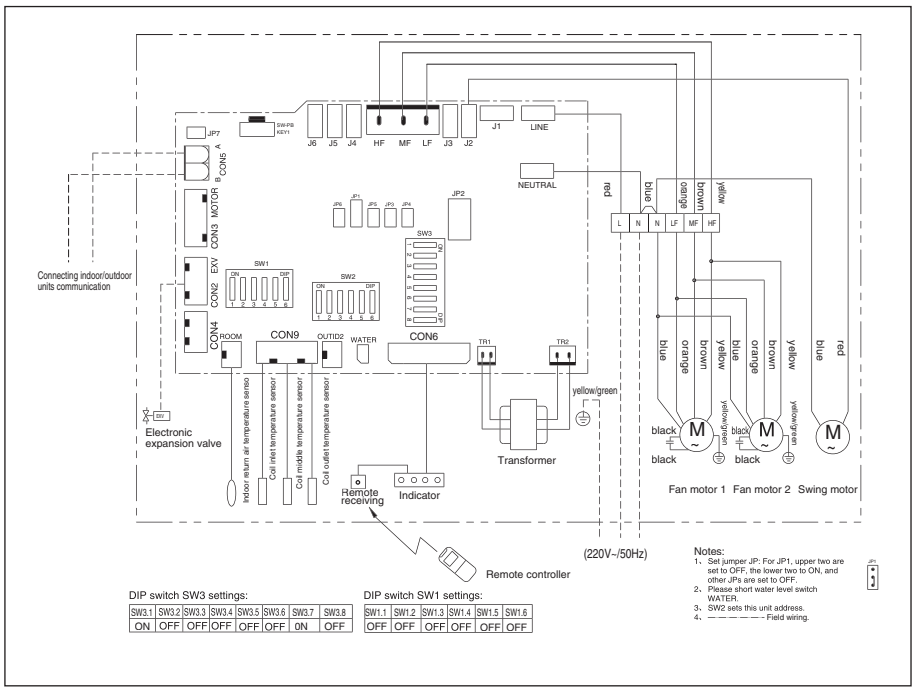
Model: MCM020/030T


Connecting indoor/outdoor units communication
Electronic expansion valve
Indoor return air temperature senso
Coil inlet temperature sensor
Coil middle temperature sensor
Coil outlet temperature sensor
Remote receiving
Indicator
Transformer
Fan motor
Swing motor
Remote controller
(220V~/50Hz)
DIP switch SW3 settings:
DIP switch SW1 settings:
Notes:
1、Set jumper JP: For JP1, upper two are set to OFF, the lower two to ON, and other JPs are set to OFF.
2、Please short water level switch WATER.
3、SW2 sets this unit address.
4、Field wiring.

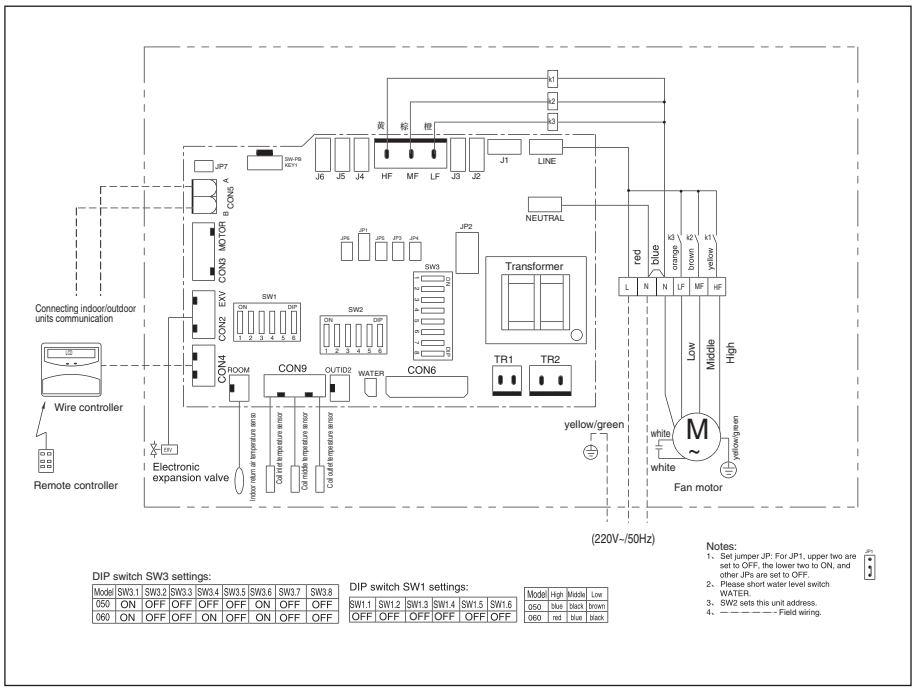
Model	SW3.1	SW3.2	SW3.3	SW3.4	SW3.5	SW3.6	SW3.7	SW3.8
020	OFF	ON	OFF	OFF	OFF	OFF	0N	OFF
030	OFF	ON	OFF	ON	OFF	OFF	0N	OFF

SW1.1	SW1.2	SW1.3	SW1.4	SW1.5	SW1.6
OFF	OFF	OFF	OFF	OFF	OFF

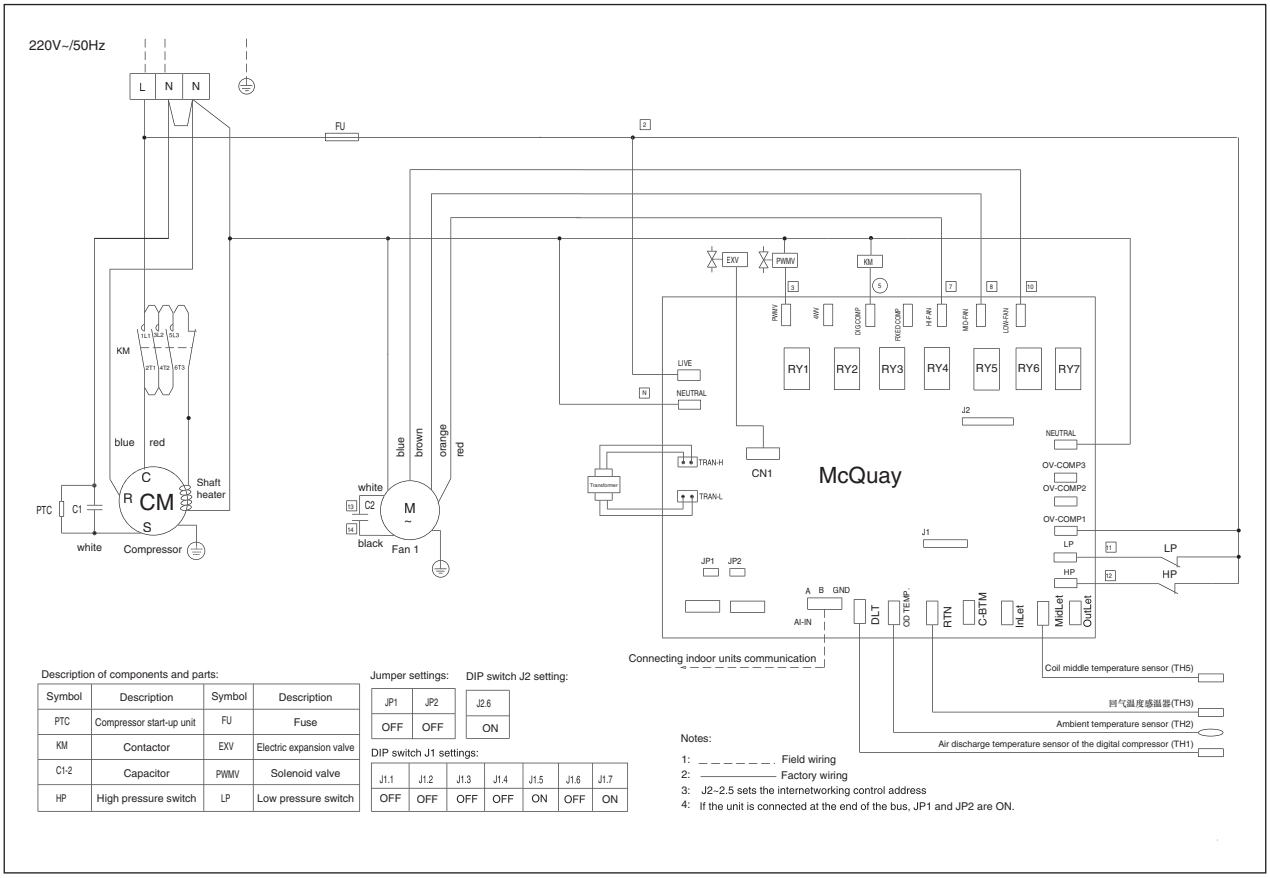
Model: MCM050T



Model: MDB050/060T



Model: MDS030A



Description of components and parts:

Symbol	Description	Symbol	Description
PTC	Compressor start-up unit	FU	Fuse
KM	Contactor	EXV	Electric expansion valve
C1-2	Capacitor	PWMV	Solenoid valve
HP	High pressure switch	LP	Low pressure switch

Jumper settings:

JP1	JP2
OFF	OFF

DIP switch J2 setting:

J2.6
ON

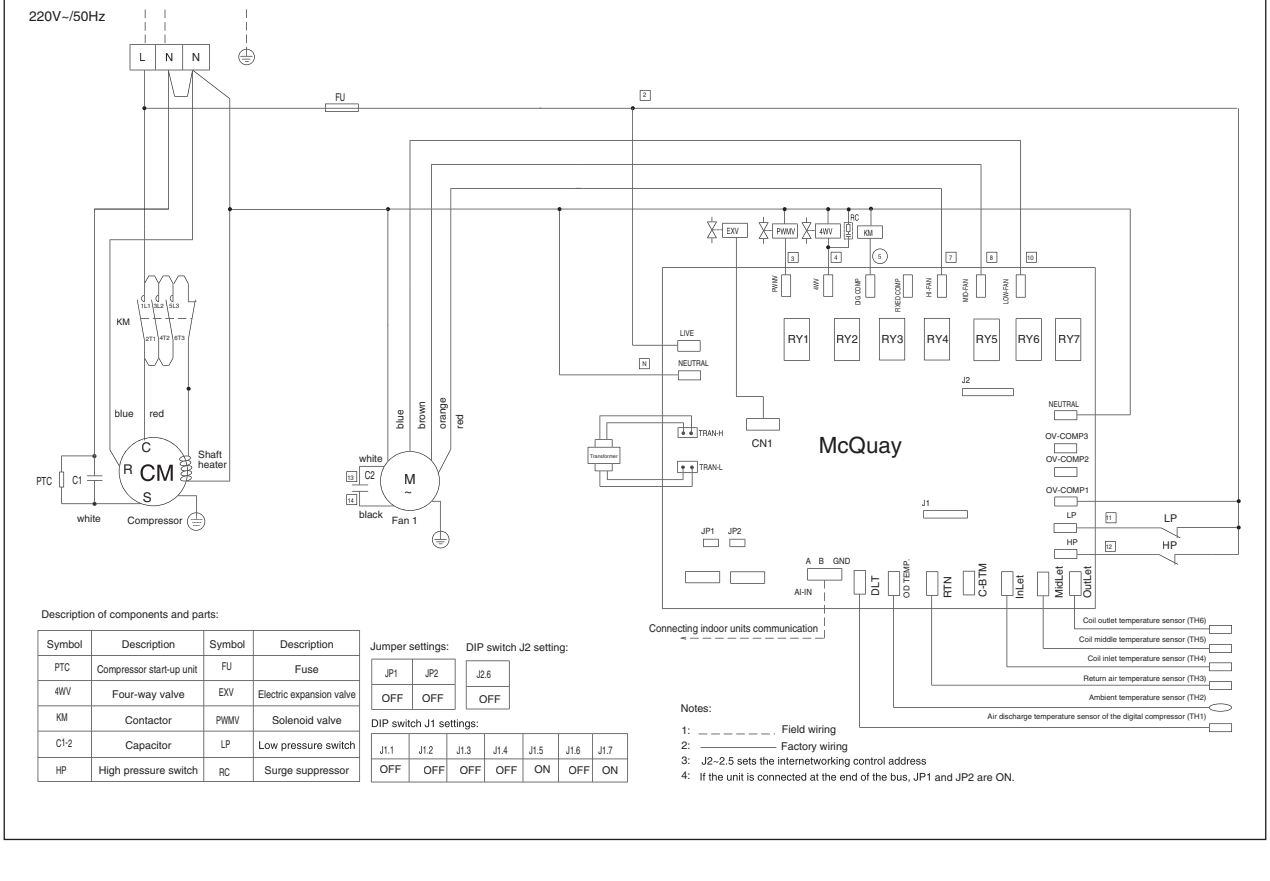
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	ON	OFF	ON

Notes:

1: _ _ _ _ _ _ _ Field wiring
2: ——————— Factory wiring
3: J2~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS030AR



Description of components and parts:

Symbol	Description	Symbol	Description
PTC	Compressor start-up unit	FU	Fuse
4WV	Four-way valve	EXV	Electric expansion valve
KM	Contactor	PWMV	Solenoid valve
C1-2	Capacitor	LP	Low pressure switch
HP	High pressure switch	RC	Surge suppressor

Jumper settings:

JP1	JP2
OFF	OFF

DIP switch J2 setting:

J2.6
OFF

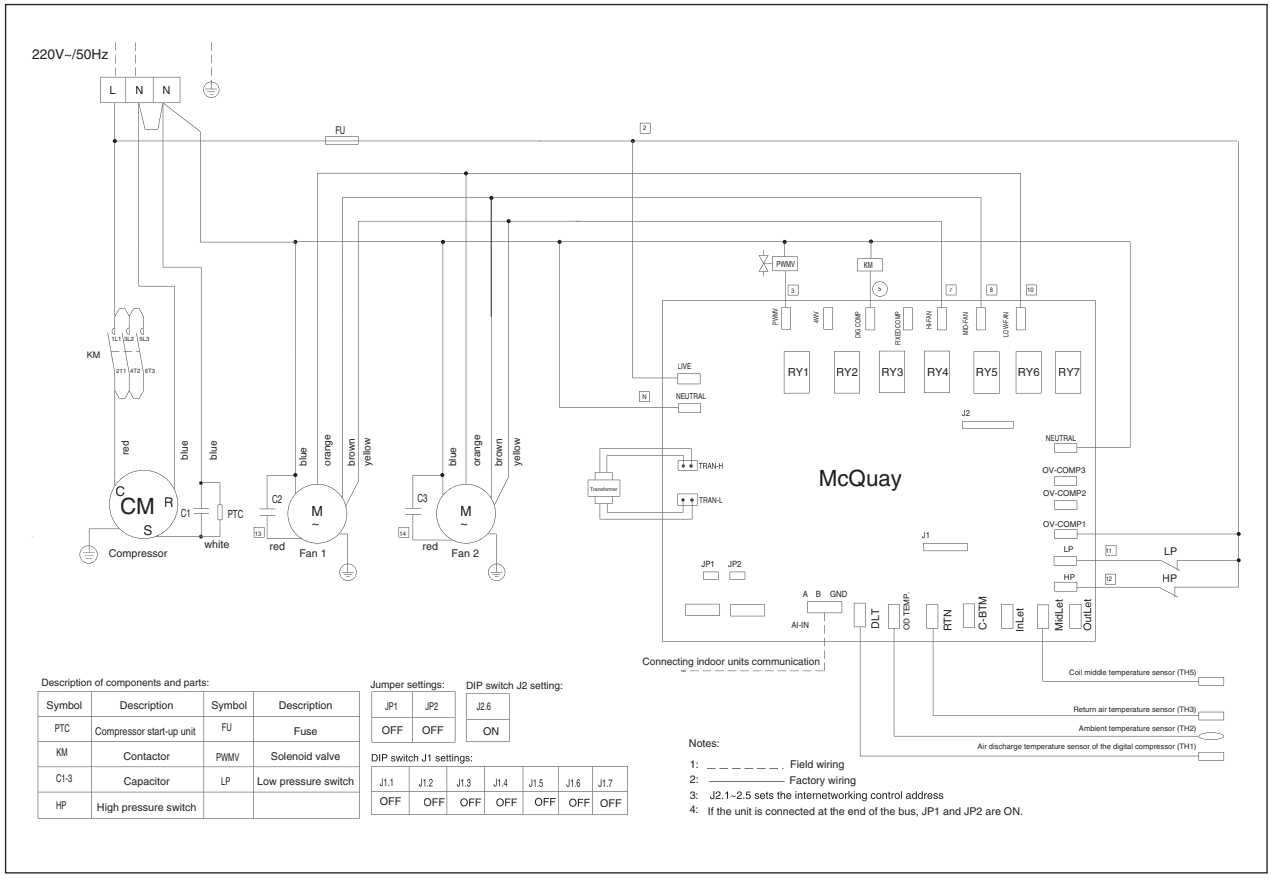
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	ON	OFF	ON

Notes:

1: _ _ _ _ _ _ _ Field wiring
2: ——————— Factory wiring
3: J2~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS040A



Description of components and parts:

Symbol	Description	Symbol	Description
PTC	Compressor start-up unit	FU	Fuse
KM	Contactor	PWMV	Solenoid valve
C1-3	Capacitor	LP	Low pressure switch
HP	High pressure switch		

Jumper settings:

JP1	JP2
OFF	OFF

DIP switch J2 setting:

J2.6
ON

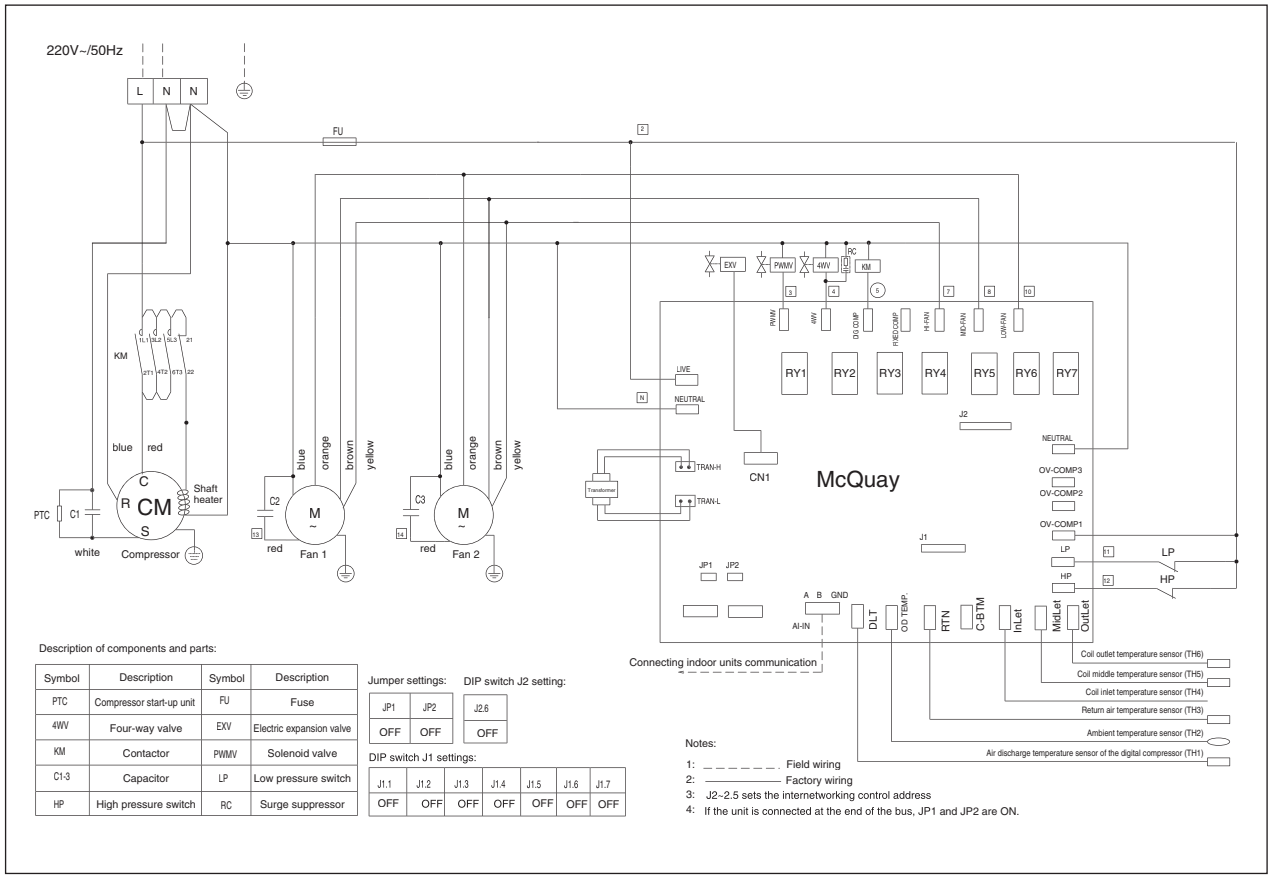
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	OFF	OFF

Notes:

1: _ _ _ _ _ _ . Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS040AR



Description of components and parts:

Symbol	Description	Symbol	Description
PTC	Compressor start-up unit	FU	Fuse
4WV	Four-way valve	EXV	Electric expansion valve
KM	Contactor	PWMV	Solenoid valve
C1-3	Capacitor	LP	Low pressure switch
HP	High pressure switch	RC	Surge suppressor

Jumper settings:

JP1	JP2
OFF	OFF

DIP switch J2 setting:

J2.6
OFF

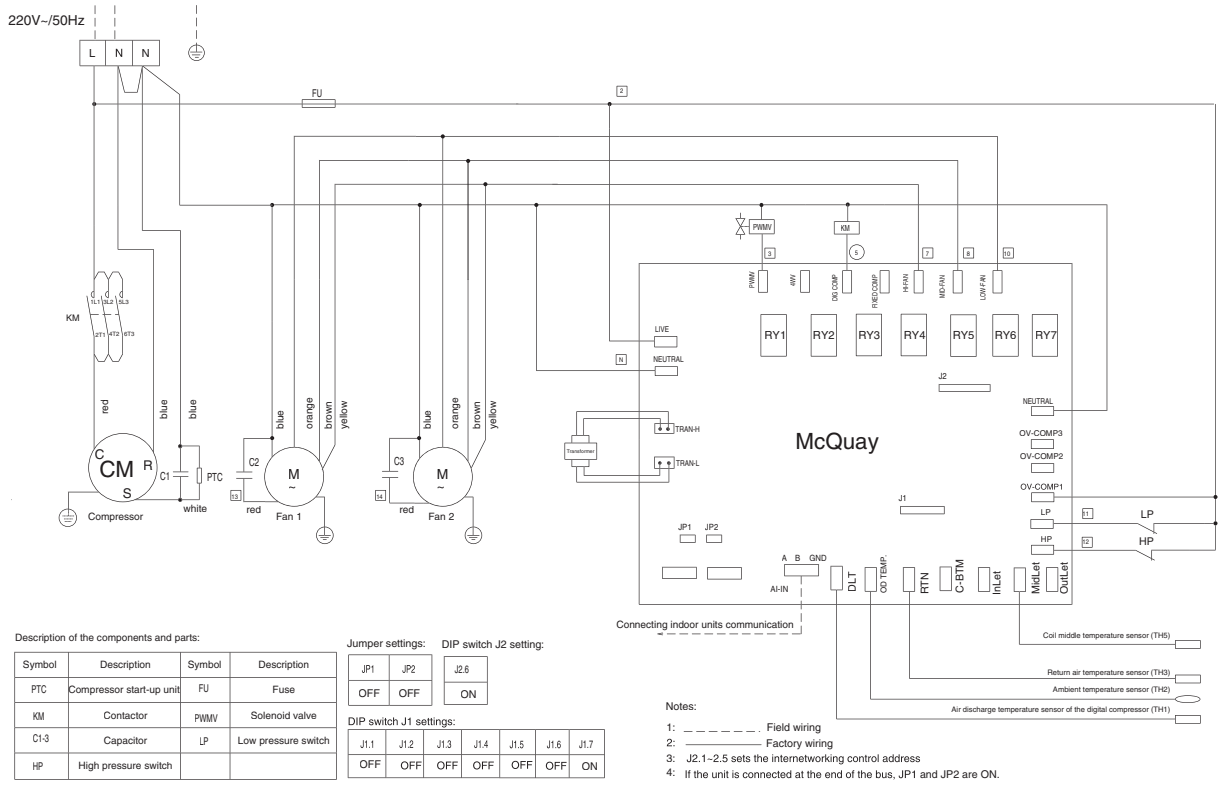
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	OFF	OFF

Notes:

1: _ _ _ _ _ _ . Field wiring
2: ———— Factory wiring
3: J2-2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS050A



Description of the components and parts:

Symbol	Description	Symbol	Description
PTC	Compressor start-up unit	FU	Fuse
KM	Contactor	PWMV	Solenoid valve
C1-3	Capacitor	LP	Low pressure switch
HP	High pressure switch		

Jumper settings:

JP1	JP2
OFF	OFF

DIP switch J2 setting:

J2.6
ON

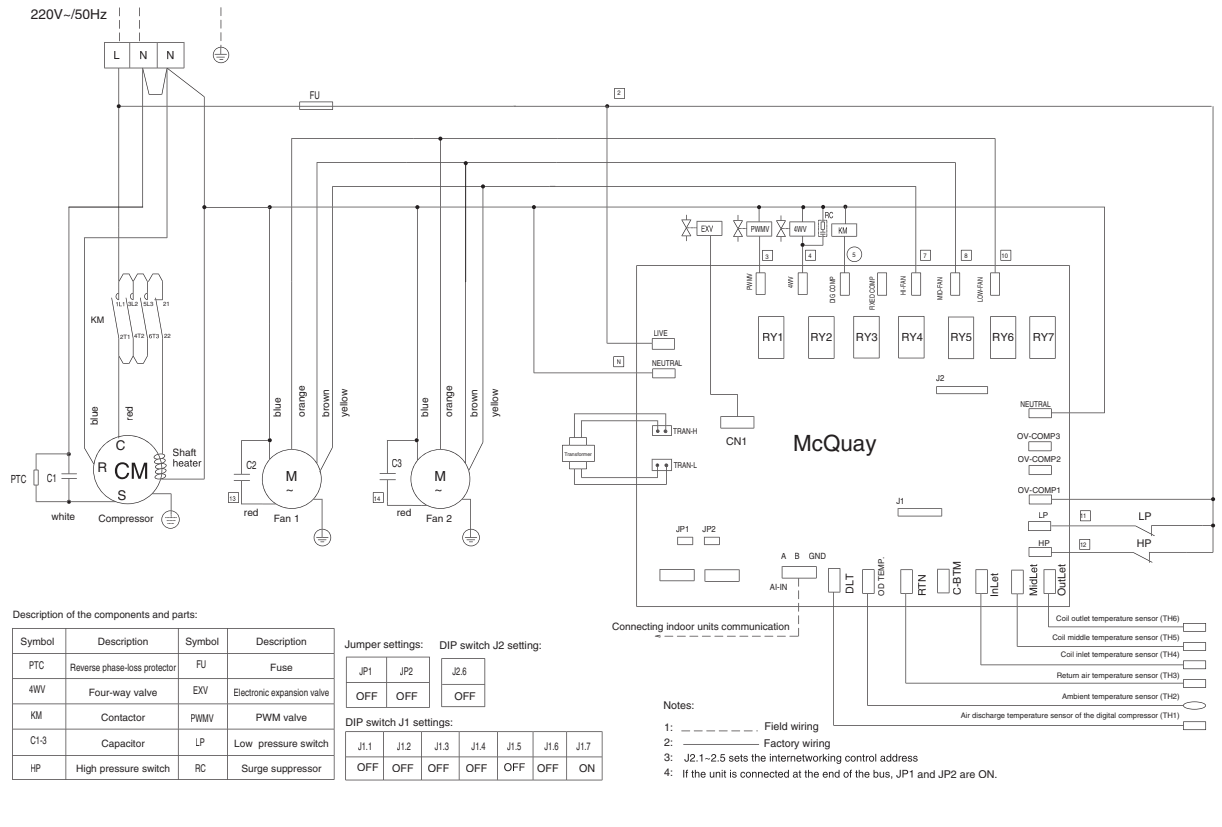
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	OFF	ON

Notes:

1: _ _ _ _ _ _ _ Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS050AR



Description of the components and parts:

Symbol	Description	Symbol	Description
PTC	Reverse phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV	Electronic expansion valve
KM	Contactor	PWMV	PWM valve
C1-3	Capacitor	LP	Low pressure switch
HP	High pressure switch	RC	Surge suppressor

Jumper settings:

JP1	JP2
OFF	OFF

DIP switch J2 setting:

J2.6
OFF

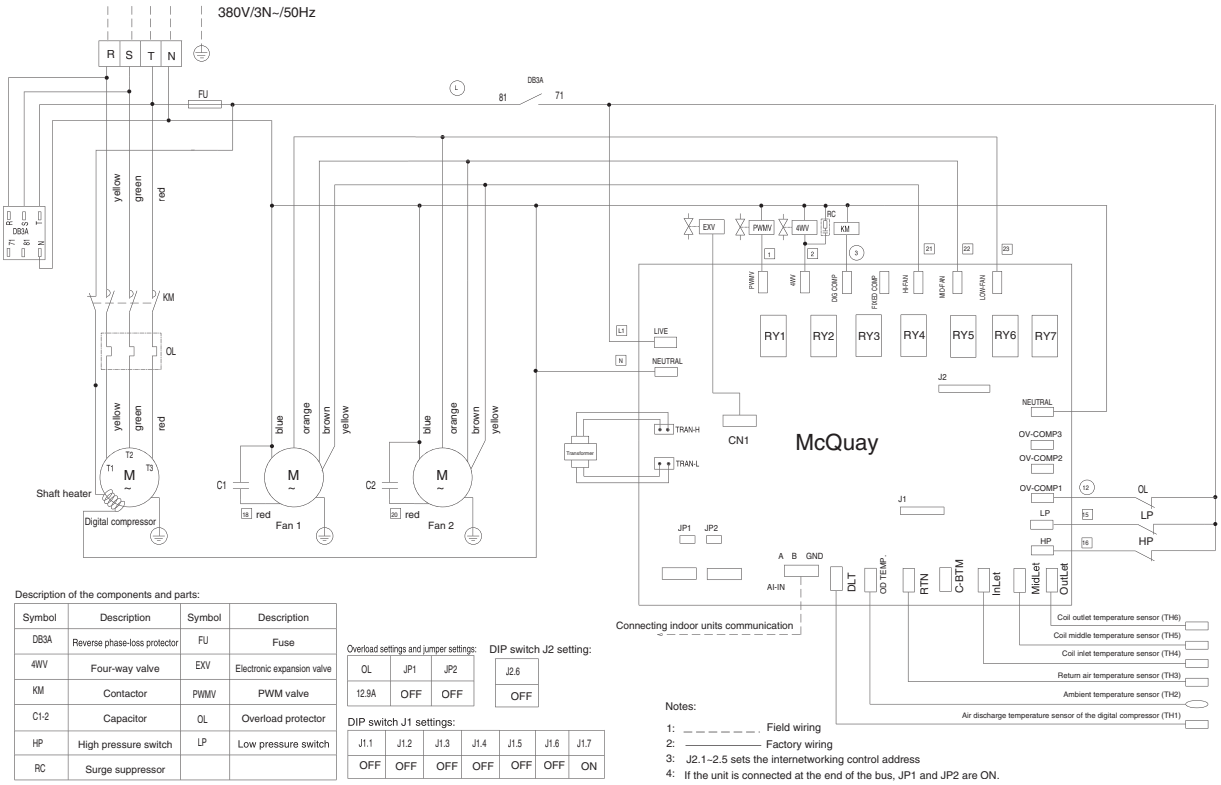
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	OFF	ON

Notes:

1: _ _ _ _ _ _ _ Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS050AR



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reverse phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV	Electronic expansion valve
KM	Contactor	PWMV	PWM valve
C1-2	Capacitor	OL	Overload protector
HP	High pressure switch	LP	Low pressure switch
RC	Surge suppressor		

Overload settings and jumper settings:

OL	JP1	JP2
12.9A	OFF	OFF

DIP switch J2 setting:

J2.6
OFF

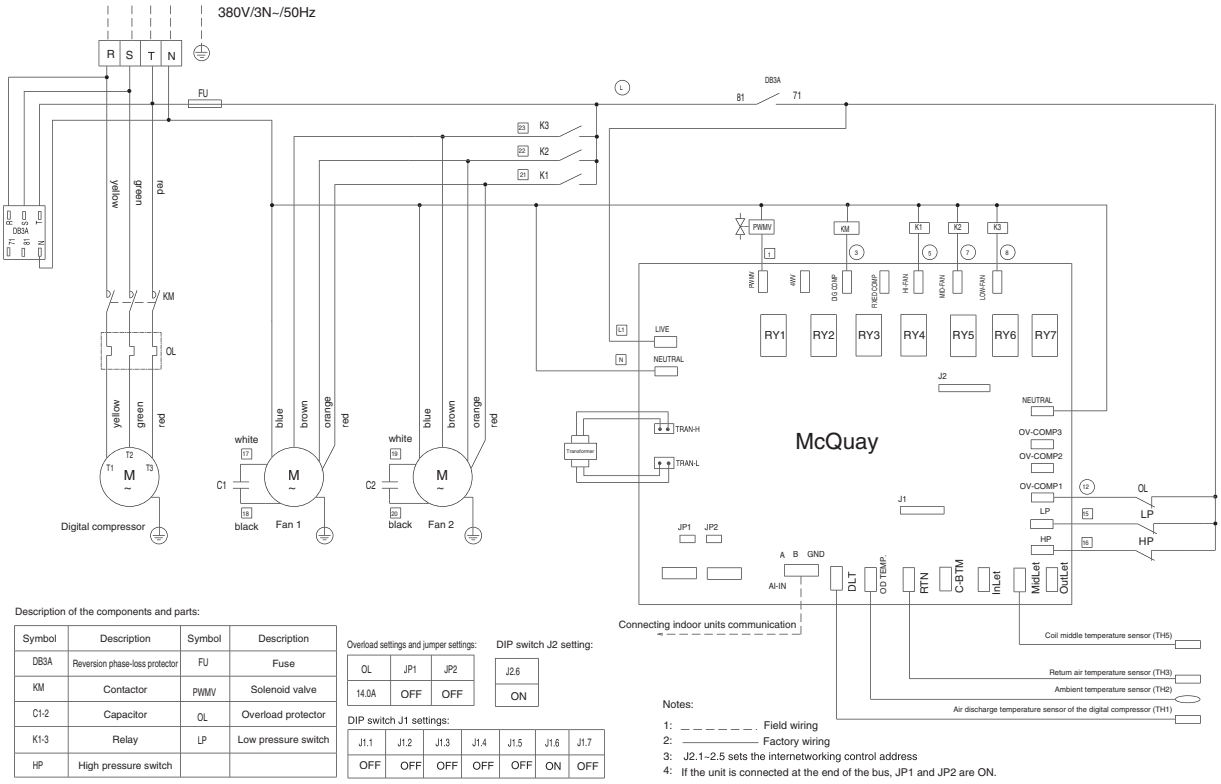
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	OFF	ON

Notes:

1: _ _ _ _ _ _ Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS060A



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
KM	Contactor	PWMV	Solenoid valve
C1-2	Capacitor	OL	Overload protector
K1-3	Relay	LP	Low pressure switch
HP	High pressure switch		

Overload settings and jumper settings:

OL	JP1	JP2
14.0A	OFF	OFF

DIP switch J2 setting:

J2.6
ON

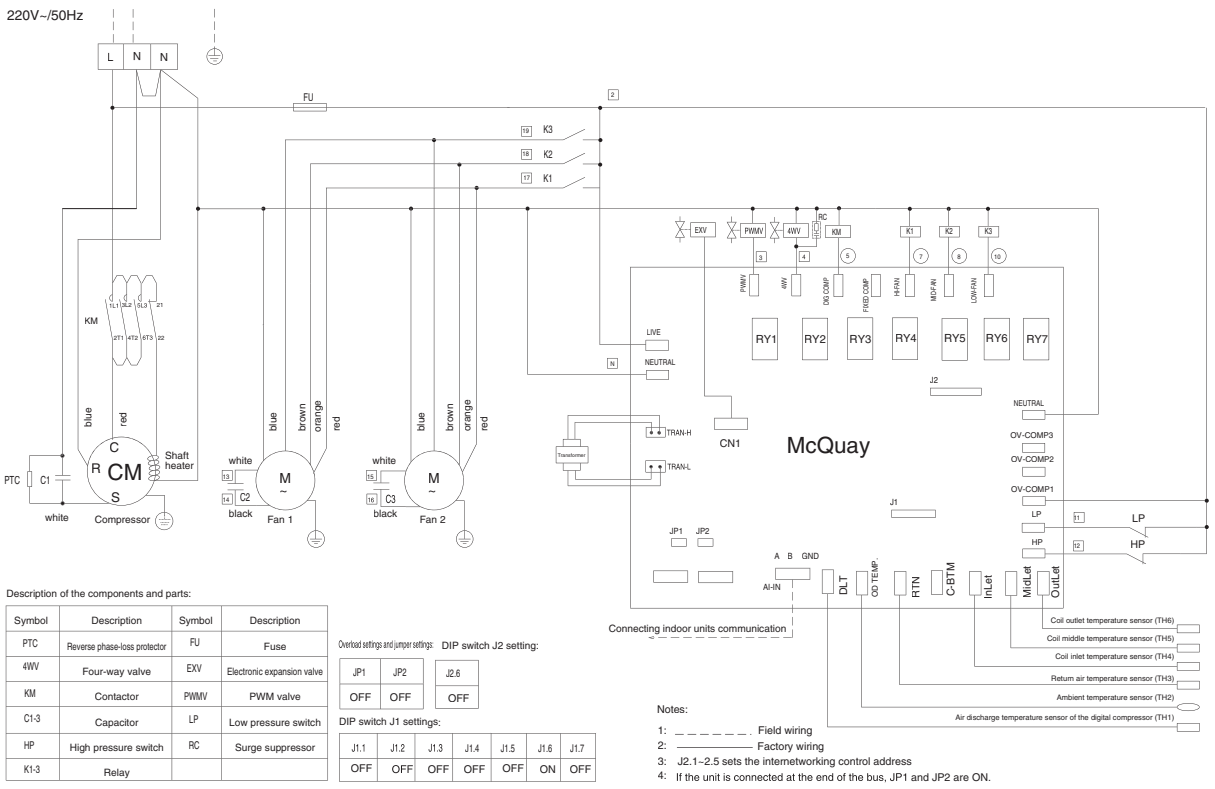
DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	ON	OFF

Notes:

1: _ _ _ _ _ _ Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS060AR



Description of the components and parts:

Symbol	Description	Symbol	Description
PTC	Reverse phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV	Electronic expansion valve
KM	Contactor	PWMV	PWM valve
C1-3	Capacitor	LP	Low pressure switch
HP	High pressure switch	RC	Surge suppressor
K1-3	Relay		

Overload settings and jumper settings: DIP switch J2 setting:

JP1	JP2
OFF	OFF

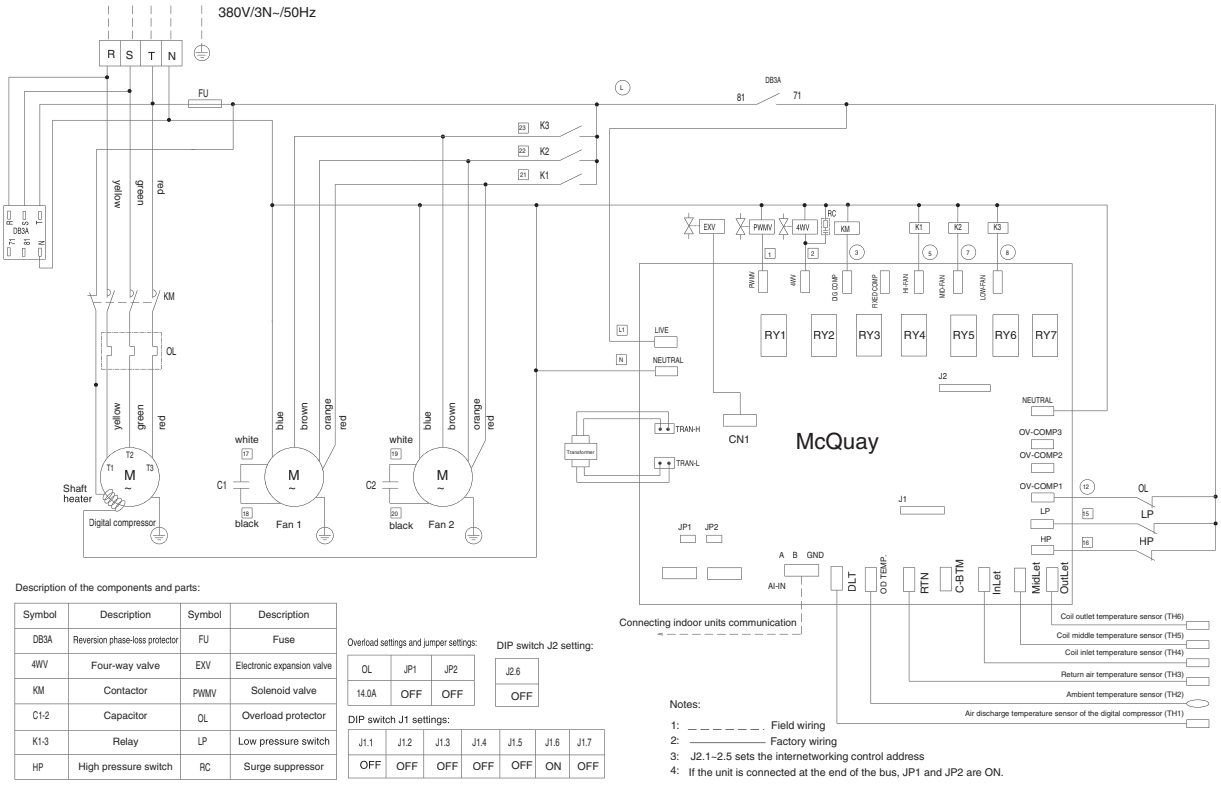
J2.6
OFF

DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	ON	OFF

Notes:
1: _ _ _ _ _ _ . Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS060AR



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV	Electronic expansion valve
KM	Contactor	PWMV	Solenoid valve
C1-2	Capacitor	OL	Overload protector
K1-3	Relay	LP	Low pressure switch
HP	High pressure switch	RC	Surge suppressor

Overload settings and jumper settings:

OL	JP1	JP2
14.0A	OFF	OFF

DIP switch J2 setting:

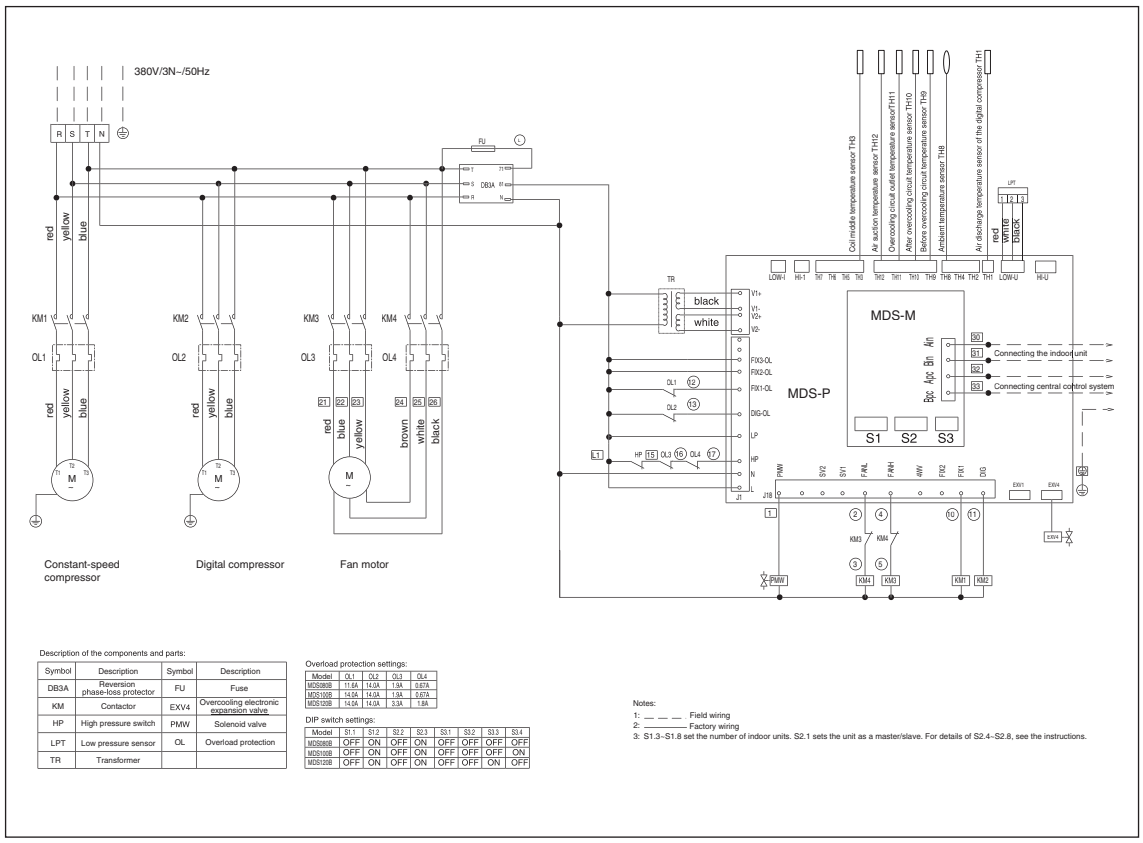
J2.6
OFF

DIP switch J1 settings:

J1.1	J1.2	J1.3	J1.4	J1.5	J1.6	J1.7
OFF	OFF	OFF	OFF	OFF	ON	OFF

Notes:
1: _ _ _ _ _ _ . Field wiring
2: ———— Factory wiring
3: J2.1~2.5 sets the internetworking control address
4: If the unit is connected at the end of the bus, JP1 and JP2 are ON.

Model: MDS080/100/120B



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	PMW	Solenoid valve
LPT	Low pressure sensor	OL	Overload protection
TR	Transformer		

Overload protection settings:

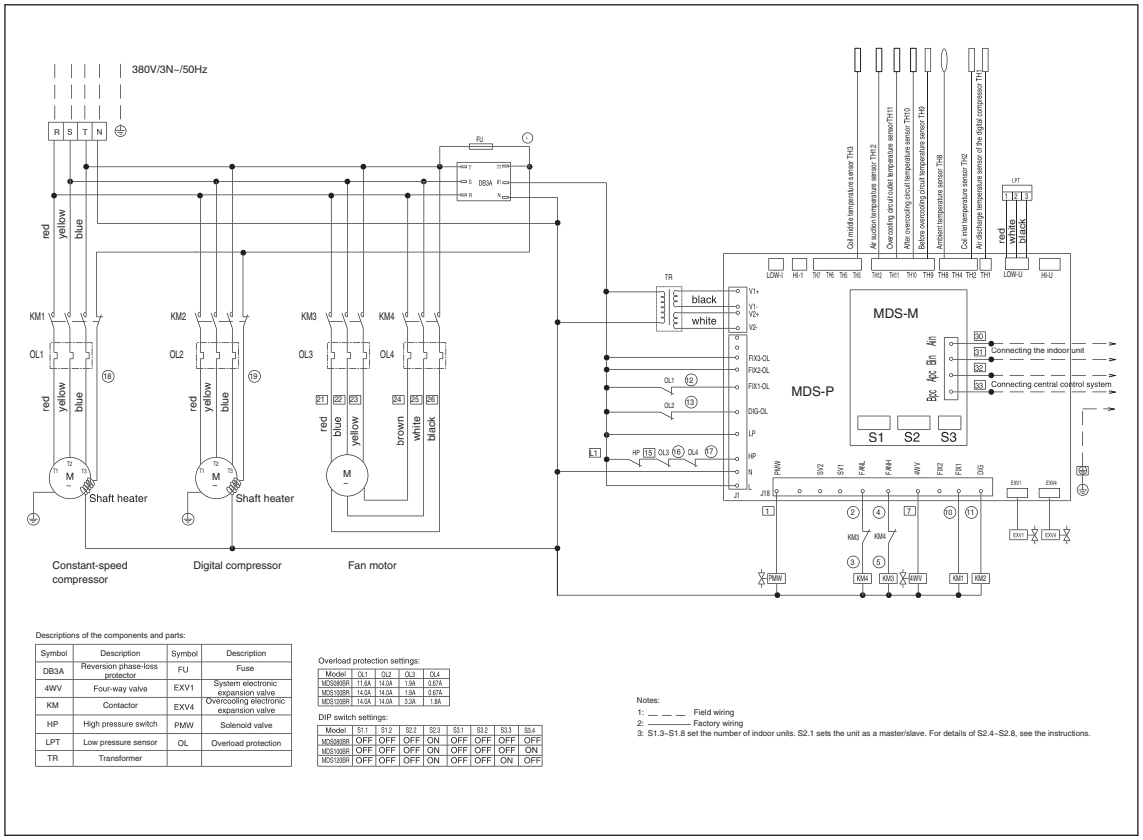
Model	OL1	OL2	OL3	OL4
MDS080B	11.6A	14.0A	1.9A	0.67A
MDS100B	14.0A	14.0A	1.9A	0.67A
MDS120B	14.0A	14.0A	3.3A	1.8A

DIP switch settings:

Model	S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
MDS080B	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
MDS100B	OFF	ON	OFF	ON	OFF	OFF	OFF	ON
MDS120B	OFF	ON	OFF	ON	OFF	OFF	ON	OFF

Notes:
1: — — — Field wiring
2: ———— Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

Model: MDS080/100/120BR



Descriptions of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	PMW	Solenoid valve
LPT	Low pressure sensor	OL	Overload protection
TR	Transformer		

Overload protection settings:

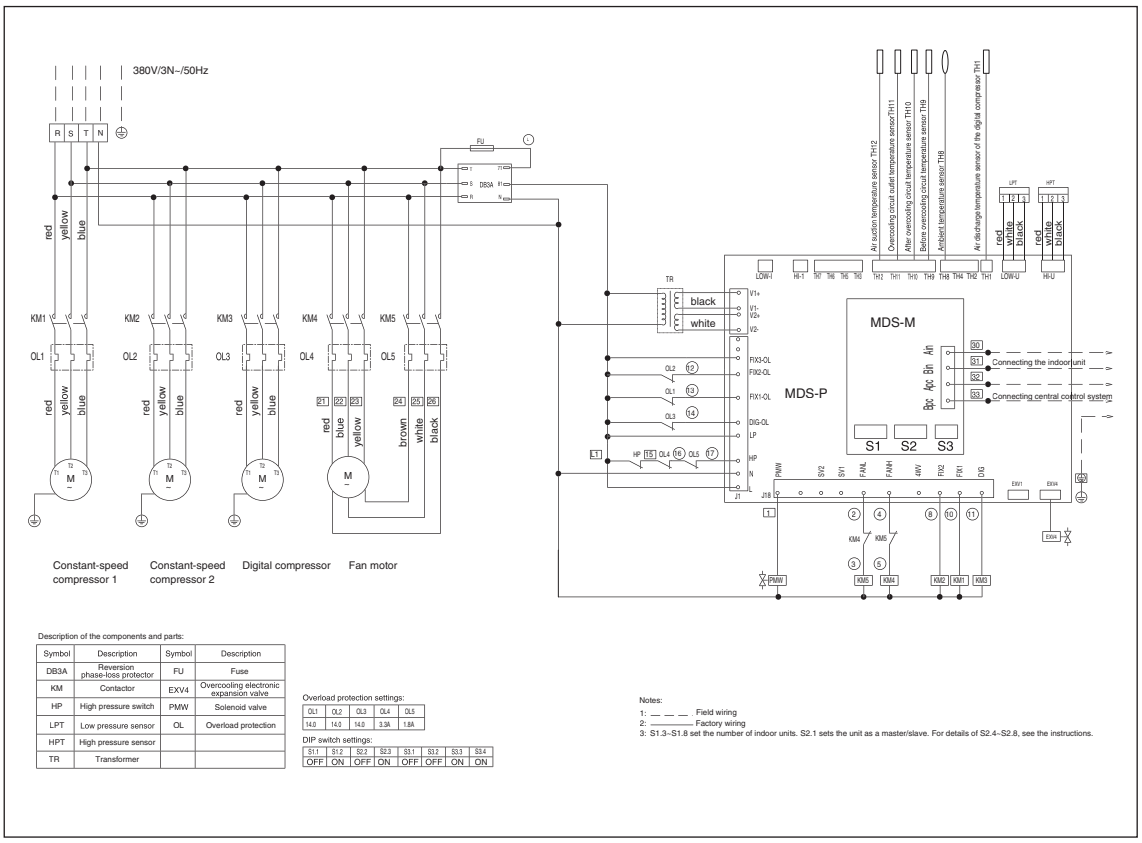
Model	OL1	OL2	OL3	OL4
MDS080BR	11.6A	14.0A	1.9A	0.67A
MDS100BR	14.0A	14.0A	1.9A	0.67A
MDS120BR	14.0A	14.0A	3.3A	1.8A

DIP switch settings:

Model	S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
MDS080BR	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
MDS100BR	OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
MDS120BR	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF

Notes:
1: — — — Field wiring
2: ———— Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

Model: MDS150B



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	PMW	Solenoid valve
LPT	Low pressure sensor	OL	Overload protection
HPT	High pressure sensor		
TR	Transformer		

Overload protection settings:

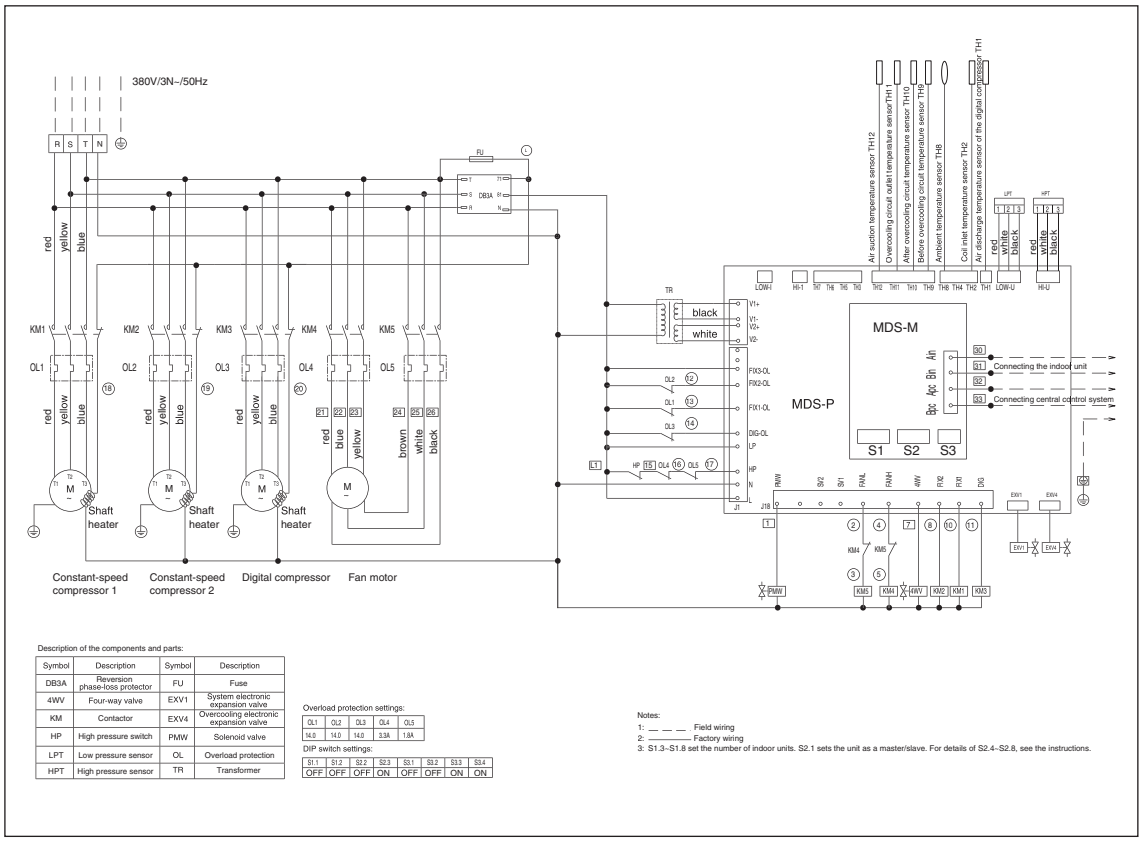
OL1	OL2	OL3	OL4	OL5
14.0	14.0	14.0	3.3A	1.8A

DIP switch settings:

S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
OFF	ON	OFF	ON	OFF	OFF	ON	ON

Notes:
1: — — — : Field wiring
2: ———— : Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

Model: MDS150BR



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	PMW	Solenoid valve
LPT	Low pressure sensor	OL	Overload protection
HPT	High pressure sensor	TR	Transformer

Overload protection settings:

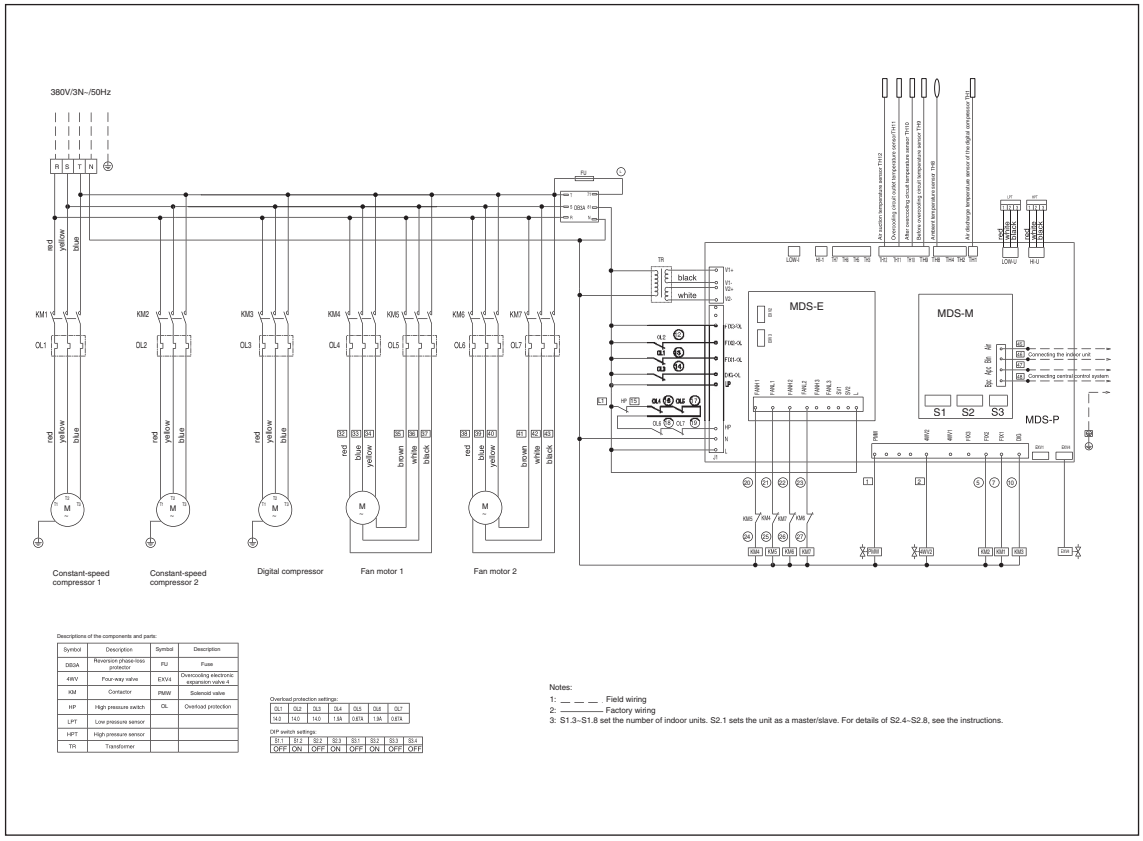
OL1	OL2	OL3	OL4	OL5
14.0	14.0	14.0	3.3A	1.8A

DIP switch settings:

S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
OFF	OFF	OFF	ON	OFF	OFF	ON	ON

Notes:
1: — — — : Field wiring
2: ———— : Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

Model: MDS180B



Descriptions of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV4	Overcooling electronic expansion valve 4
KM	Contactor	PMW	Solenoid valve
HP	High pressure switch	OL	Overload protection
LPT	Low pressure sensor		
HPT	High pressure sensor		
TR	Transformer		

Overload protection settings:

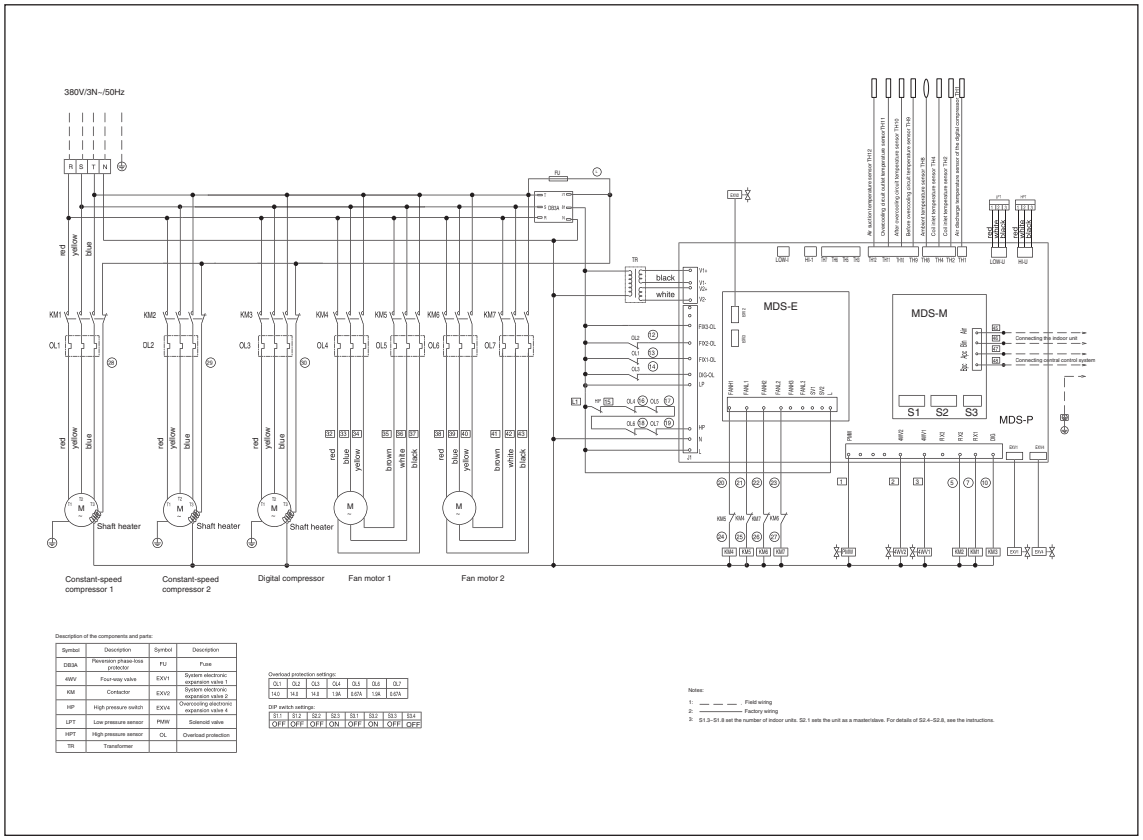
OL1	OL2	OL3	OL4	OL5	OL6	OL7
14.2	14.0	14.0	1.9A	0.67A	1.9A	0.67A

DIP switch settings:

S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
OFF	ON	OFF	ON	OFF	ON	OFF	OFF

Notes:
1: — — — Field wiring
2: ———— Factory wiring
3: S1.3–S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4–S2.8, see the instructions.

Model: MDS180BR



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve 1
KM	Contactor	EXV2	System electronic expansion valve 2
HP	High pressure switch	EXV4	Overcooling electronic expansion valve 4
LPT	Low pressure sensor	PMW	Solenoid valve
HPT	High pressure sensor	OL	Overload protection
TR	Transformer		

Overload protection settings:

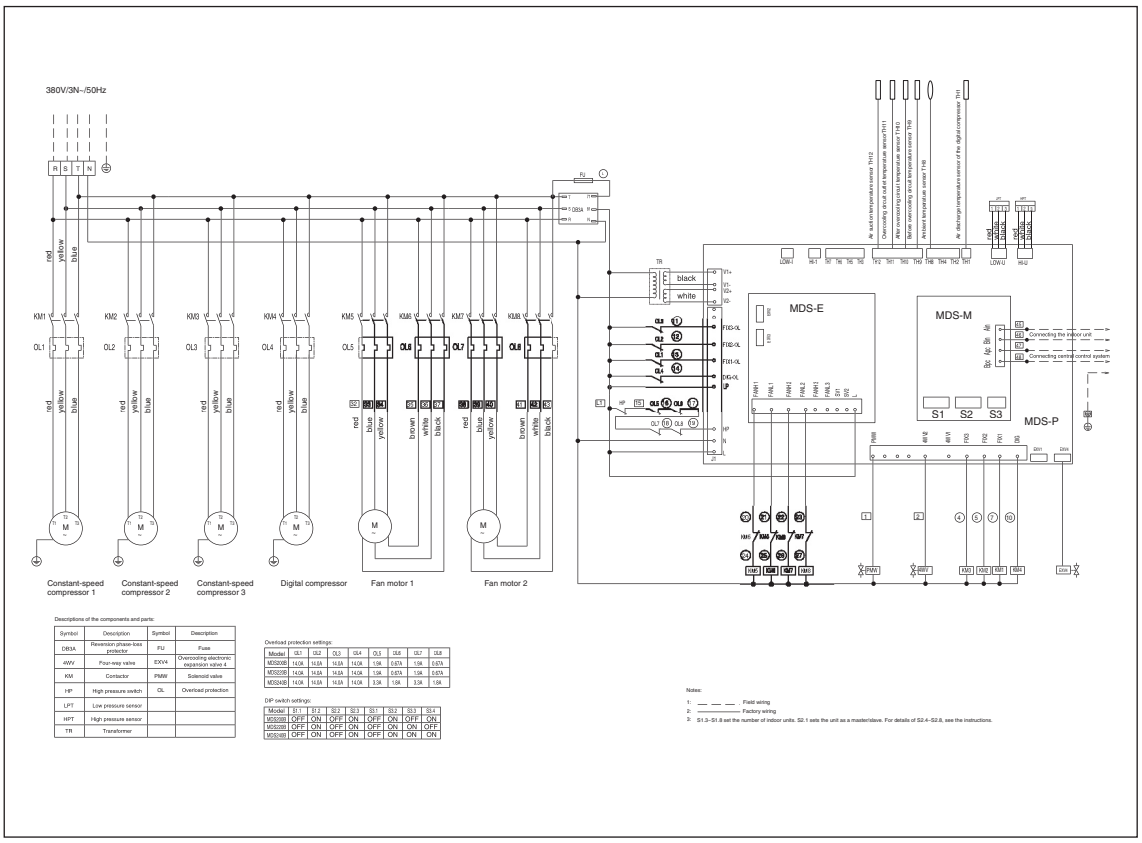
OL1	OL2	OL3	OL4	OL5	OL6	OL7
14.0	14.0	14.0	1.9A	0.67A	1.9A	0.67A

DIP switch settings:

S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
OFF	OFF	OFF	ON	OFF	ON	OFF	OFF

Notes:
1: — — — Field wiring
2: ———— Factory wiring
3: S1.3–S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4–S2.8, see the instructions.

Model: MDS200/220/240B



Descriptions of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV4	Overcooling electronic expansion valve 4
KM	Contactor	PMW	Solenoid valve
HP	High pressure switch	OL	Overload protection
LPT	Low pressure sensor		
HPT	High pressure sensor		
TR	Transformer		

Overload protection settings:

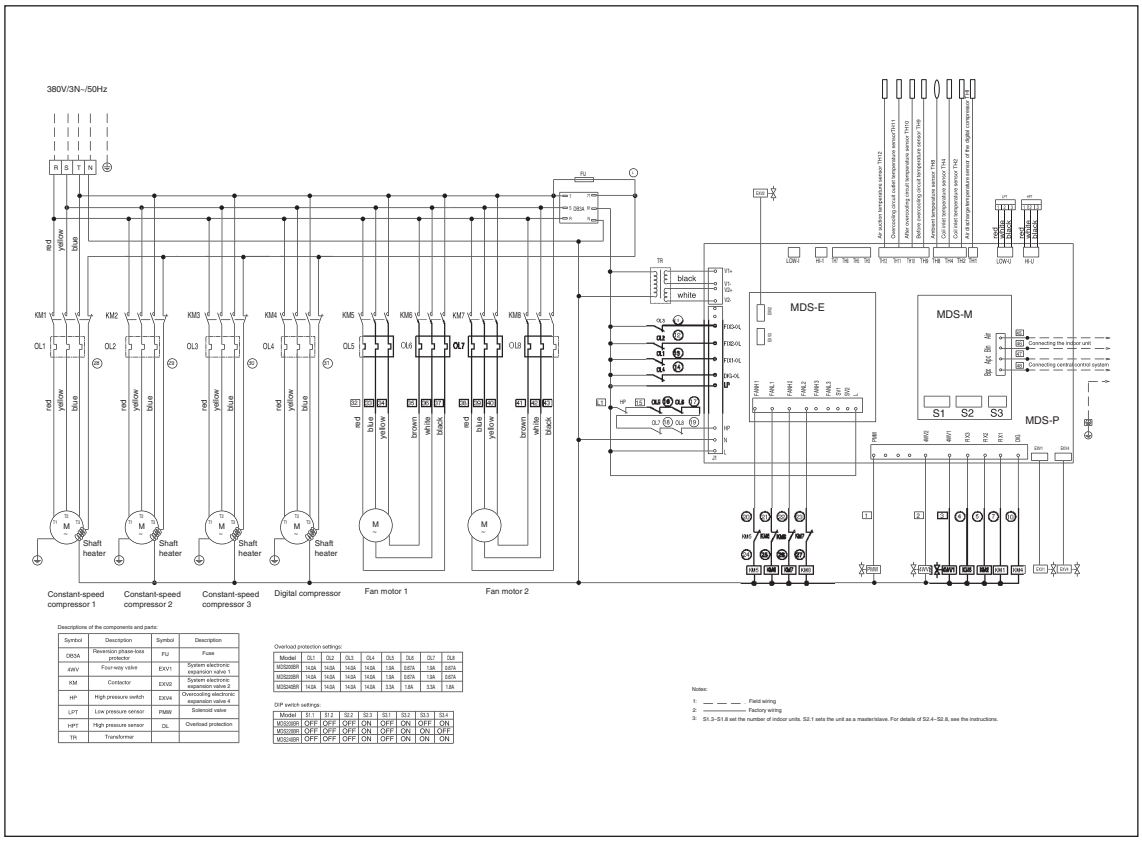
Model	OL1	OL2	OL3	OL4	OL5	OL6	OL7	OL8
MDS200B	14.0A	14.0A	14.0A	14.0A	1.9A	0.67A	1.9A	0.67A
MDS220B	14.0A	14.0A	14.0A	14.0A	1.9A	0.67A	1.9A	0.67A
MDS240B	14.0A	14.0A	14.0A	14.0A	3.3A	1.9A	3.3A	1.9A

DIP switch settings:

Model	S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
MDS200B	OFF	ON	OFF	ON	OFF	ON	OFF	ON
MDS220B	OFF	ON	OFF	ON	OFF	ON	ON	OFF
MDS240B	OFF	ON	OFF	ON	OFF	ON	ON	ON

Notes:
1: — — — — Field wiring
2: ———— Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

Model: MDS200/220/240BR



Descriptions of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve 1
KM	Contactor	EXV2	System electronic expansion valve 2
HP	High pressure switch	EXV4	Overcooling electronic expansion valve 4
LPT	Low pressure sensor	PMW	Solenoid valve
HPT	High pressure sensor	OL	Overload protection
TR	Transformer		

Overload protection settings:

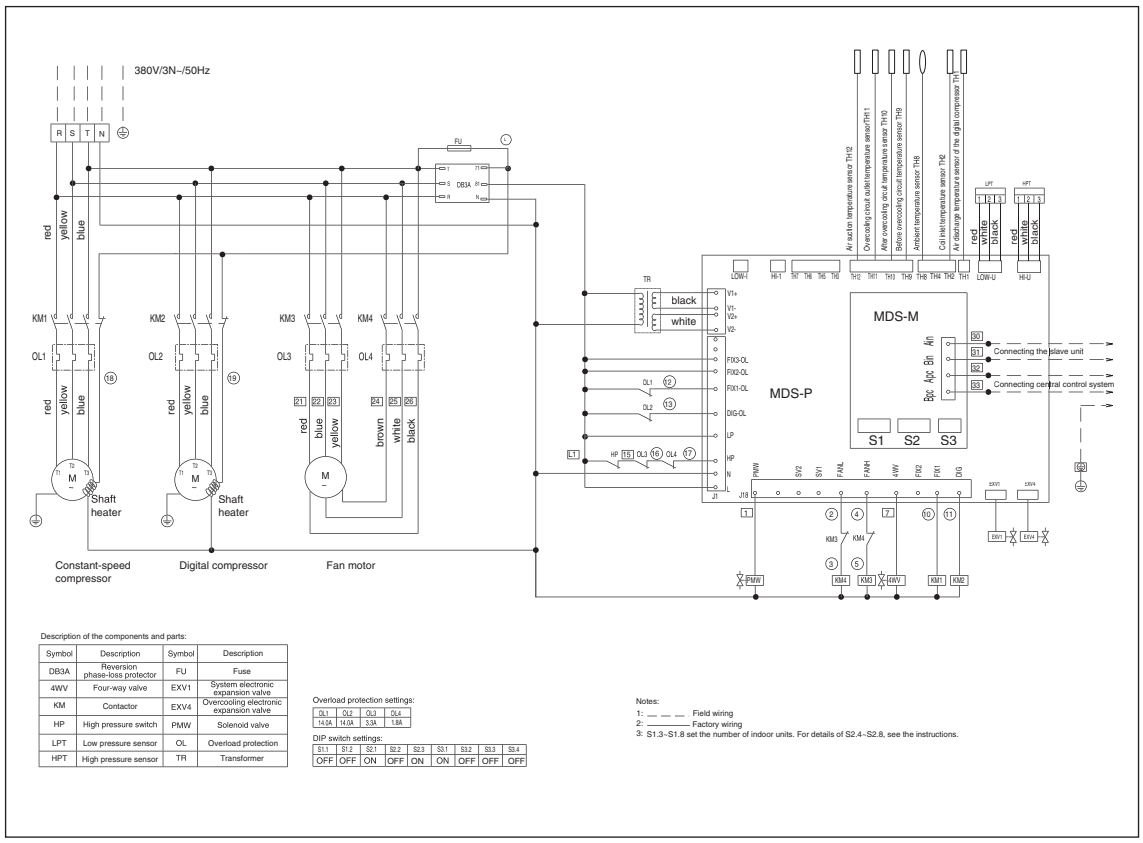
Model	OL1	OL2	OL3	OL4	OL5	OL6	OL7	OL8
MOS200BR	14.0A	14.0A	14.0A	14.0A	1.9A	0.67A	1.9A	0.67A
MOS220BR	14.0A	14.0A	14.0A	14.0A	1.9A	0.67A	1.9A	0.67A
MOS240BR	14.0A	14.0A	14.0A	14.0A	3.3A	1.9A	3.3A	1.9A

DIP switch settings:

Model	S1.1	S1.2	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
MOS200BR	OFF	OFF	OFF	ON	OFF	ON	OFF	ON
MOS220BR	OFF	OFF	OFF	ON	OFF	ON	ON	OFF
MOS240BR	OFF	OFF	OFF	ON	OFF	ON	ON	ON

Notes:
1: — — — — Field wiring
2: ———— Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

Model: MDS260BR (Master Unit)



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	PMW	Solenoid valve
LPT	Low pressure sensor	OL	Overload protection
HPT	High pressure sensor	TR	Transformer

Overload protection settings:

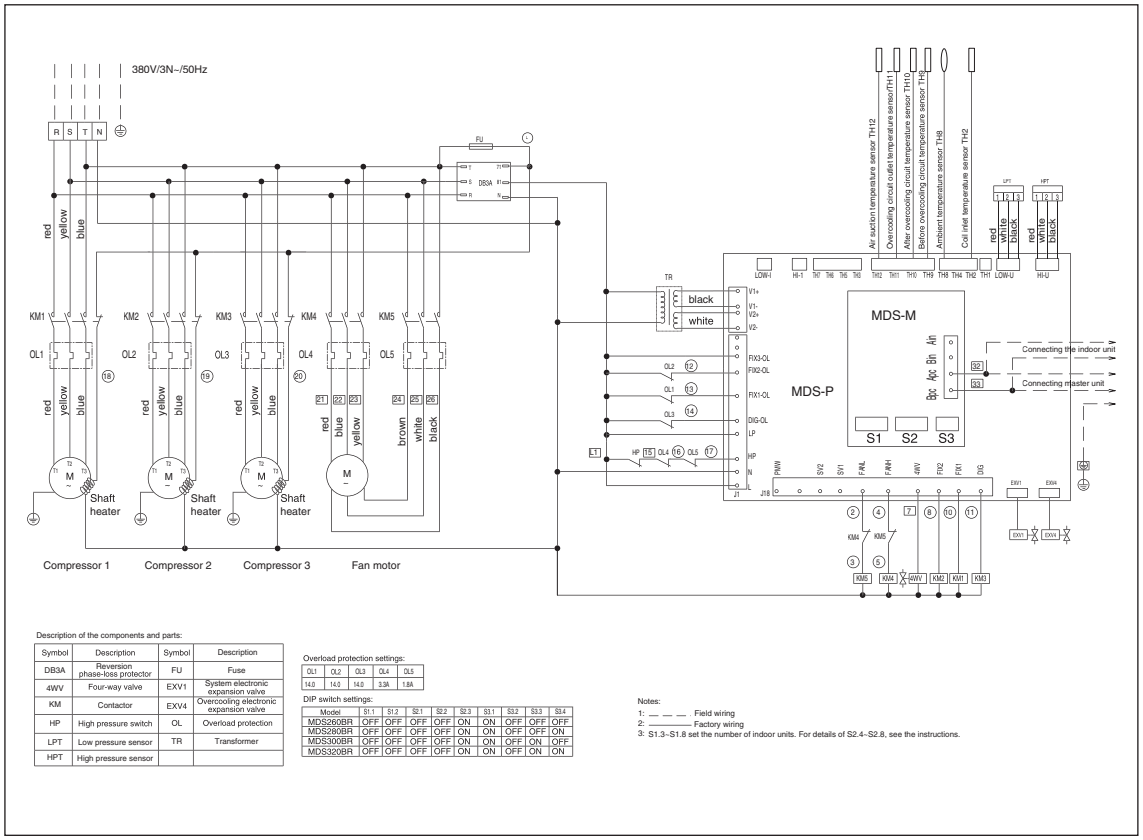
OL1	OL2	OL3	OL4
14.0A	14.0A	3.3A	1.8A

DIP switch settings:

S1.1	S1.2	S2.1	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
OFF	OFF	ON	OFF	ON	ON	OFF	OFF	OFF

Notes:
1: — — — Field wiring
2: ———— Factory wiring
3: S1.3~S1.8 set the number of indoor units. For details of S2.4~S2.8, see the instructions.

Model: MDS260/280/300BR (Slave Unit)



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	OL	Overload protection
LPT	Low pressure sensor	TR	Transformer
HPT	High pressure sensor		

Overload protection settings:

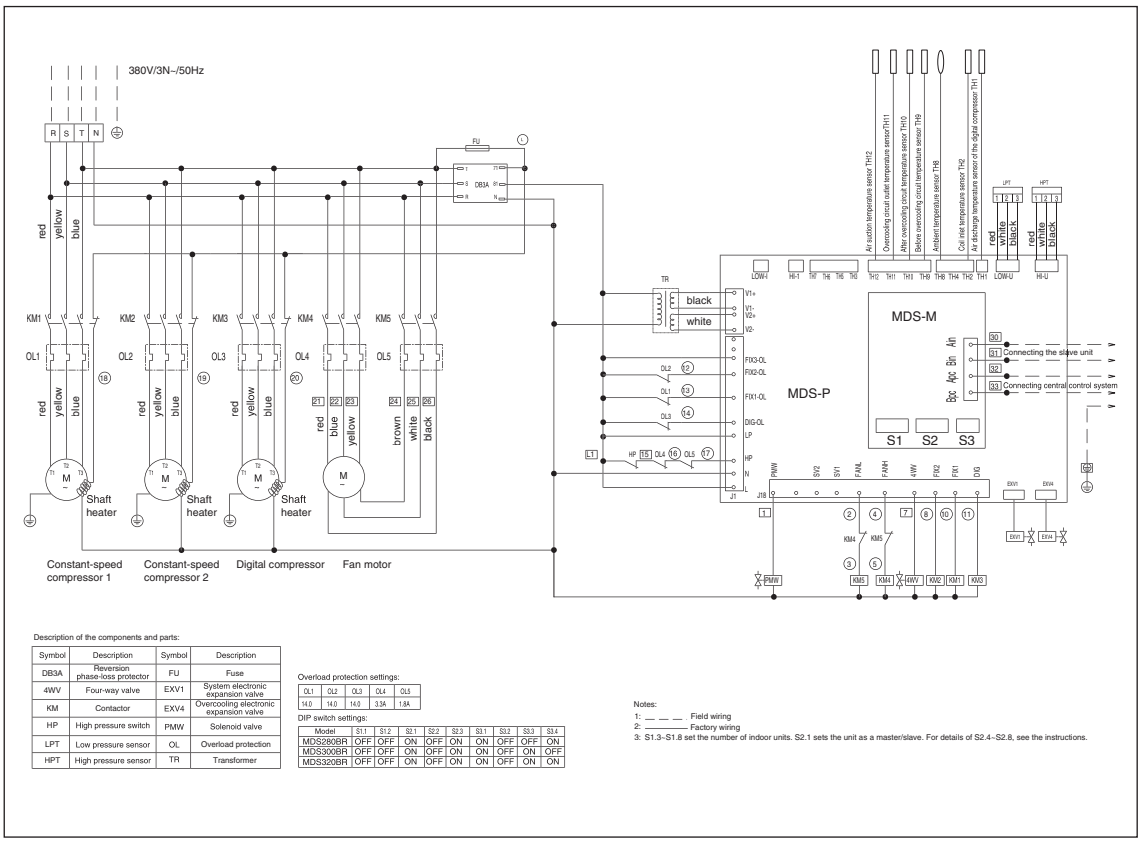
OL1	OL2	OL3	OL4	OL5
14.0	14.0	14.0	3.3A	1.8A

DIP switch settings:

Model	S1.1	S1.2	S2.1	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
MDS260BR	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
MDS280BR	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	ON
MDS300BR	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
MDS320BR	OFF	OFF	OFF	OFF	ON	ON	OFF	ON	ON

Notes:
1: — — — Field wiring
2: ———— Factory wiring
3: S1.3~S1.8 set the number of indoor units. For details of S2.4~S2.8, see the instructions.

Model: MDS280/300BR (Master Unit)



Description of the components and parts:

Symbol	Description	Symbol	Description
DB3A	Reversion phase-loss protector	FU	Fuse
4WV	Four-way valve	EXV1	System electronic expansion valve
KM	Contactor	EXV4	Overcooling electronic expansion valve
HP	High pressure switch	PMW	Solenoid valve
LPT	Low pressure sensor	OL	Overload protection
HPT	High pressure sensor	TR	Transformer

Overload protection settings:

OL1	OL2	OL3	OL4	OL5
14.0	14.0	14.0	3.3A	1.8A

DIP switch settings:

Model	S1.1	S1.2	S2.1	S2.2	S2.3	S3.1	S3.2	S3.3	S3.4
MDS280BR	OFF	OFF	ON	OFF	ON	ON	OFF	OFF	ON
MDS300BR	OFF	OFF	ON	OFF	ON	ON	OFF	ON	OFF
MDS320BR	OFF	OFF	ON	OFF	ON	ON	OFF	ON	ON

Notes:
1: — — — Field wiring
2: ——— Factory wiring
3: S1.3~S1.8 set the number of indoor units. S2.1 sets the unit as a master/slave. For details of S2.4~S2.8, see the instructions.

6 Installation

6.1 Outdoor Unit Installation

To Choose Location of Installation

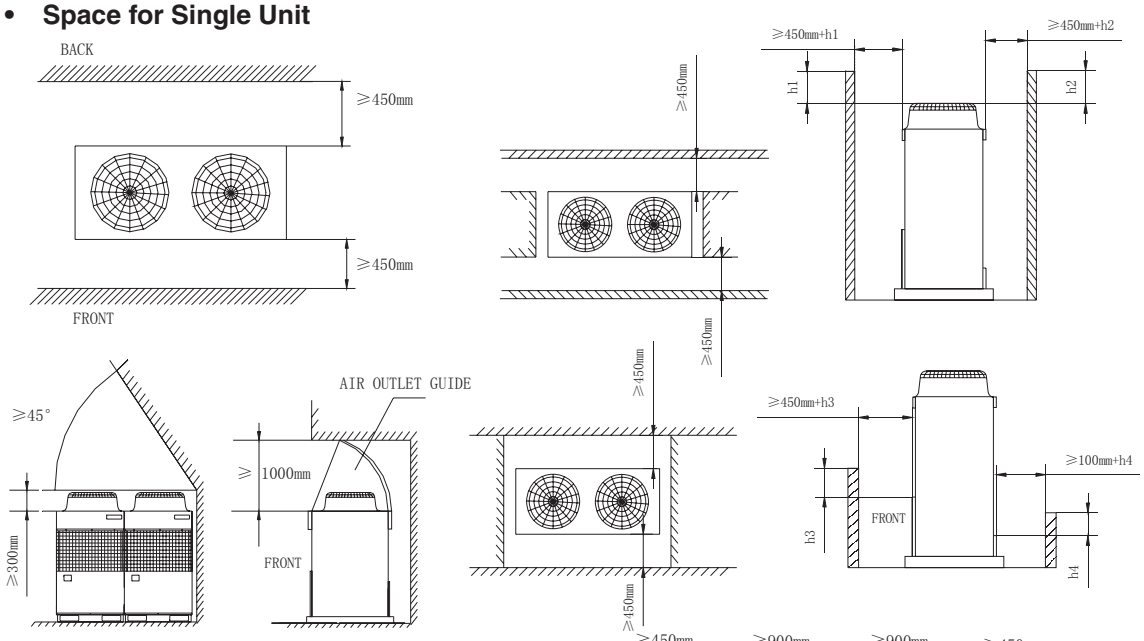
To ensure the units cooling and heating performance, follow up the below to pick up right place to install units:

- To avoid the discharge air return to air inlet, to avoid heated air discharged by other outdoor units; ensure enough space for maintenance.
- To remove any barrier of air ventilation both air supply and air discharge.
- Maintain good ventilation for better heat exchange efficiency. If not, it will cause difficulties to maintain the unit in future.
- Installation base shall be strong enough to support the units and prevent vibration. If not, it may cause the unit falling off.
- Do not expose to sunshine place.
- To avoid to install units at dirty and salty place.
- To avoid to install units at easy burning gas leakage place.
- Do not install units which is subject to impact by typhoon and strong wind, also to avoid the place of sunshine and snow & rain.
- Do not install the unit around the Hi-frequency equipment place (such as hi-frequency electric wielding machine).
- Do not install units to the place where often contacts acid liquid.
- Do not install in the place usually using sulfide or other sprayer.

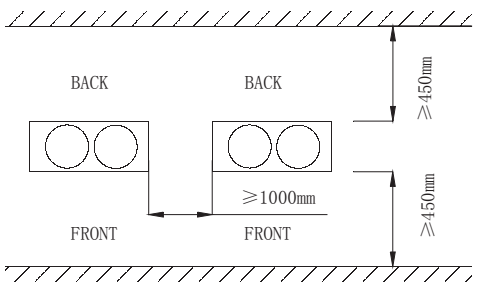
Space for Installation of Outdoor Units

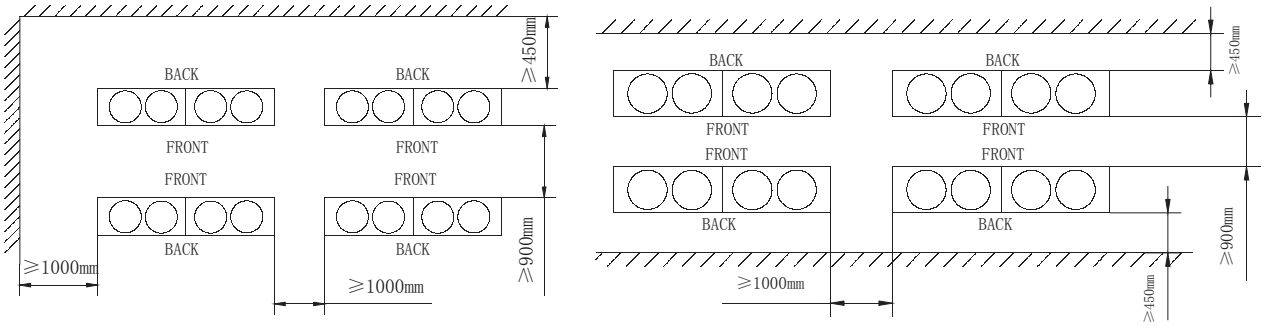
One single outdoor units can be installed in one place, many outdoors can be installed one big place, refer to the followings:

- **Space for Single Unit**



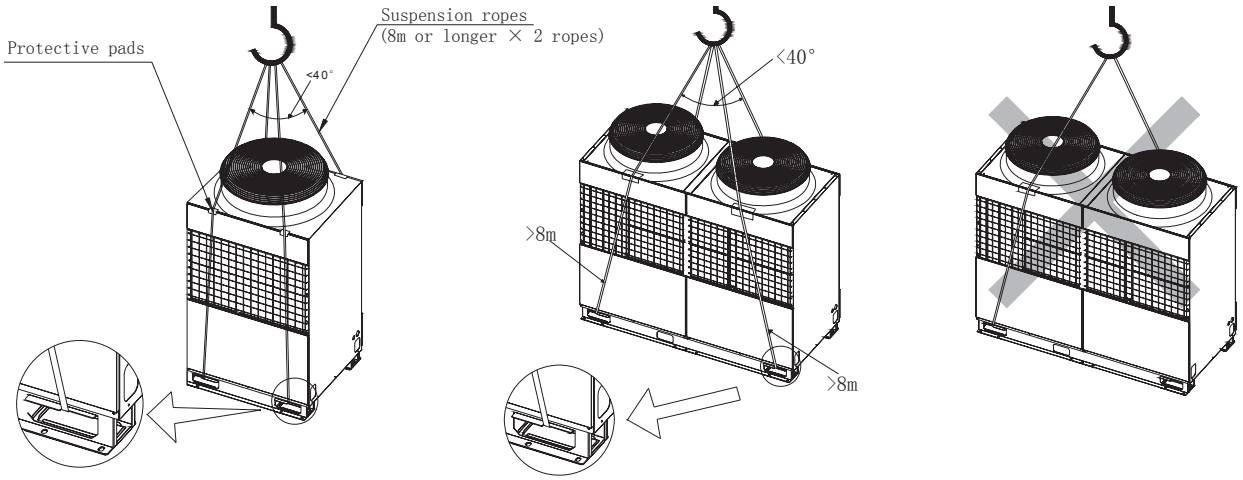
- **Space for More Than One Units**





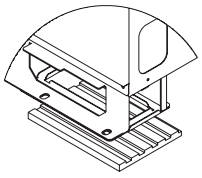
Handling Outdoor Units

Please refer to the followings to conduct moving of units; To use 4 supporting point to move units instead of 3 points, to avoid unstable move and units drop off.



Notes:

- Do not tie or move the unit with the package rope, as it is easy to break and bring danger.
- Do use special rope to tie the units for transportation.
- Do not touch the fins of units to avoid hurt of hand.
- Do keep the plastic bag from the child.



Outdoor Unit Installation

- To use the solid base or supporter to build the basement. Consider the strength of the floor, drainage (the drainage flows from the unit in operation), and piping layout. If the strength is beyond requirement, the unit may fall off to damage the unit and injure people.
- To fix the outdoor unit with screw bolt to avoid falling off by earthquake or strong wind.
- To stop vibration transferring to the installation part, the bottom panel and wall, this depends on the installation condition. Take measures to stop the vibration (such as using cushion blocking or support).
- To place the edge unit correctly. If not, the unstable unit may cause the installation foots bent. Any incorrect installation may cause the unit falling off and injuring people.

Warning:

- The installation ground and base must be strong enough to bear the unit weight and vibration.
- Notes for locating lower piping and layout: When locating lower piping and layout, make sure the basement not block the hole at the bottom. When locating the lower piping, the basic height shall not be less than 100mm, which can ensure the pipe to get through the unit bottom.

6.2 Installation of the Combined Outdoor Units (Suitable for Model of MDS260/280/300)

Two outdoor units can be grouped as one outdoor unit, to couple with multi-indoor units. Grouped outdoor units installation is more complicated than that of the single outdoor unit; please read the below notes carefully before installation.

Select the Position of the Installation for Outdoor Unit

Select one unit as the main unit, the other one as the slave unit; and two units shall be positioned in the same level side by side.

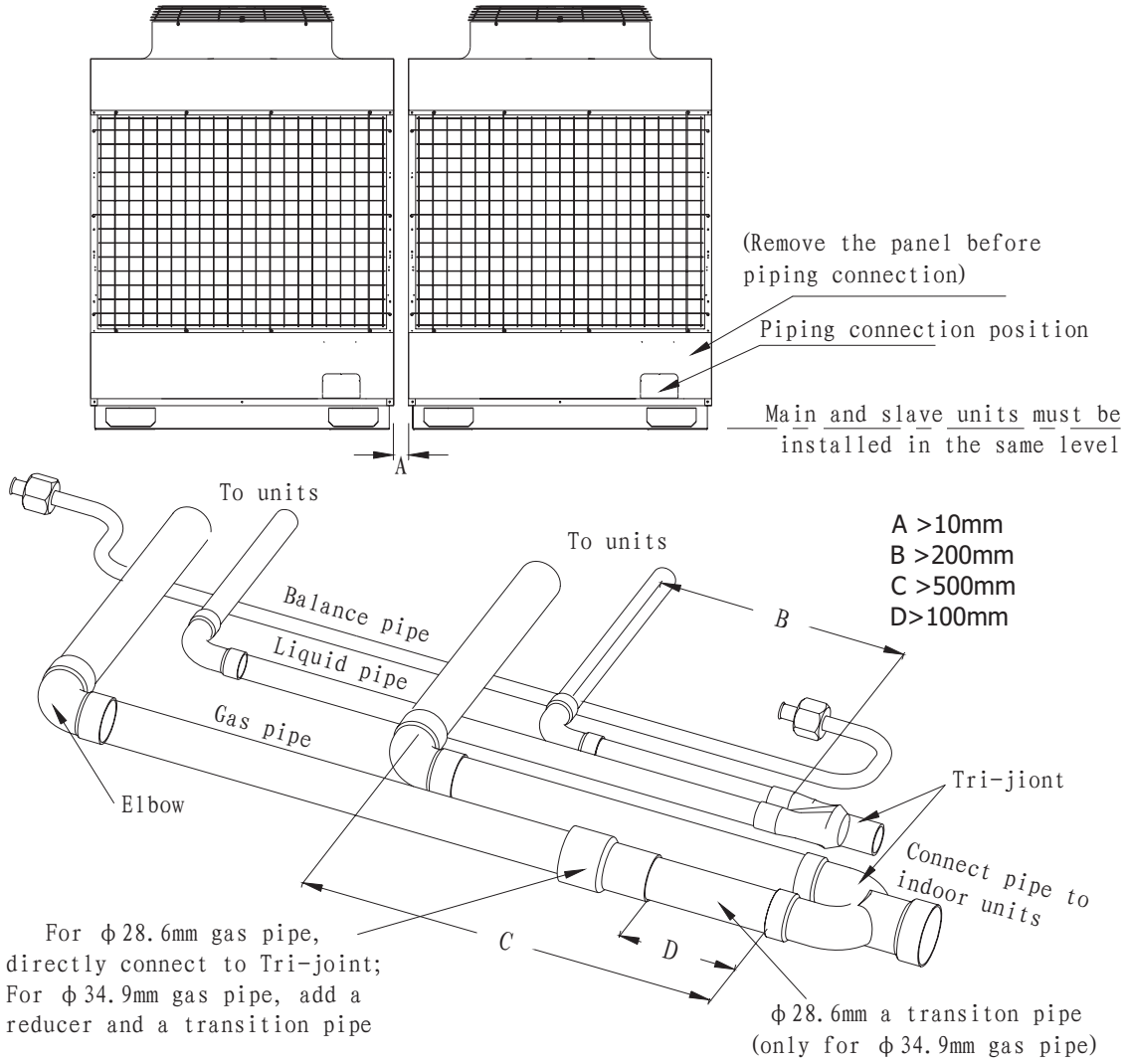
- Main unit and slave unit shall be installed in the same level.
- The distance between main and slave unit shall be more than 10mm.

Piping Connection of the Outdoor Units

- Accessory copper parts are packed with the outdoor units; piping connection includes gas, liquid and balance piping connection between the main and slave units. All piping shall be with insulation material and avoid any damage of this insulation material.

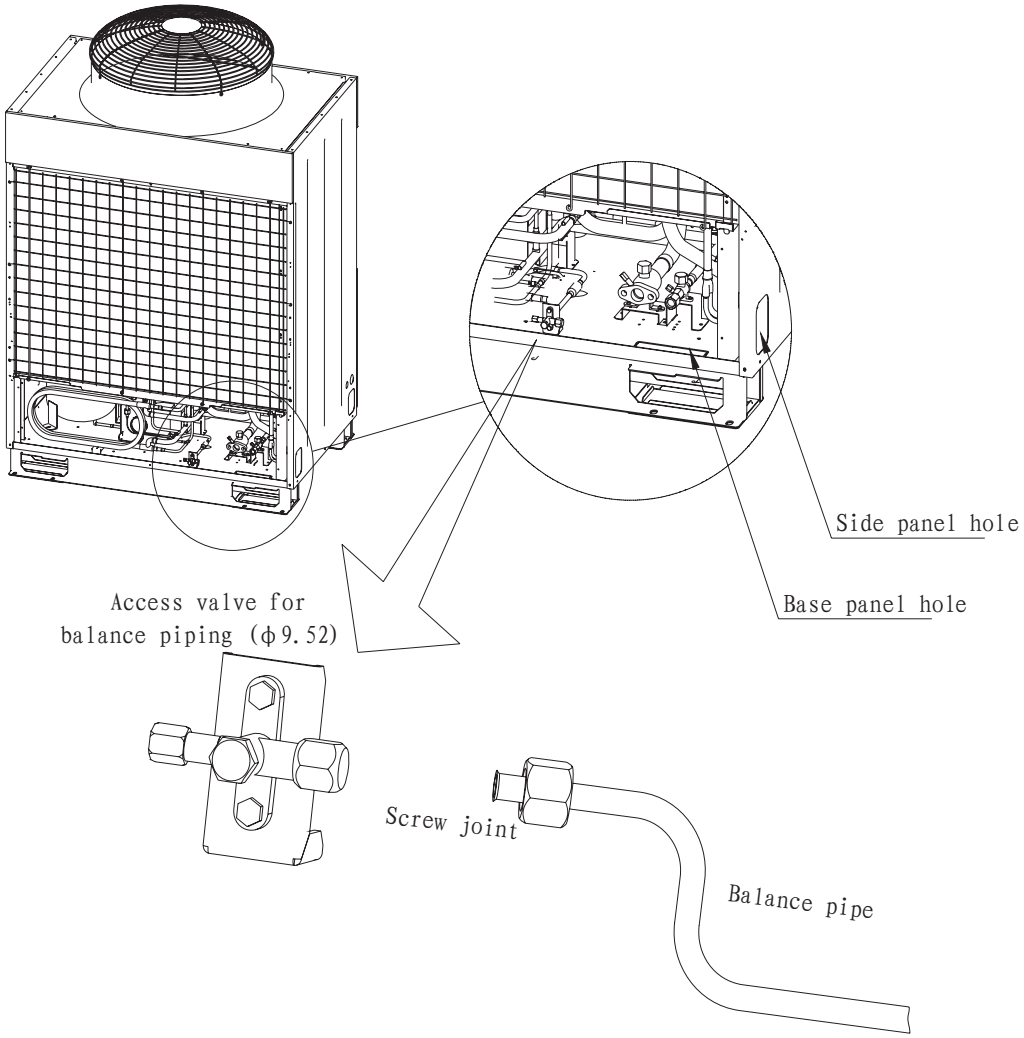
Gas and Liquid Piping Connection

- Gas and liquid piping connection with the units, please refer to the concerned chapter of “installation of refrigeration piping”.
- Gas and liquid piping shall be connected paralleled, shown as below. The dimensions of the straight pipe connected to the Tri-joint must meet the requirements below.



Balance Piping Connection

- Balance piping must be installed. Balance piping shall be connected through the hole of side panel or base panel or the piping connection position with the other outdoor unit.
- Balance piping shall be installed horizontally and orderly, and shall be lower than the access valve for balance piping.
- Protect the balance piping carefully and avoid touching any other parts, especially need to keep the piping from touching the wall of hole.
- Balance piping connection with the unit is shown in below drawing.



Insulation and Protection for Connection Piping

- All connection piping shall be well insulated.
- All piping shall be well protected to avoid any bumping, trampling and rubbing with the surround when vibrating. Otherwise the piping may be damaged, and affect the unit performance and safety, further more other safety problems may occur.

6.3 Indoor Unit Installation

To Choose the Position of Installation

Improper installation position will influence the cooling and heating performance, or even cause malfunction or accident. To follow up the below instructions:

- Ensure air flow everywhere of room.
- No barrier for air flow.
- Enough maintaining space for installation. If not, it will cause difficulties to maintain the unit in future. If not, it may cause the unit falling off.
- Wall or ceiling shall be strong enough to support indoor units.
- Do not expose to sunshine place.
- Do not install units at oil and steam gas place.
- Do not install leakage and easy burning gas place.
- Do not install around the Hi frequency equipment place.
- Do not install in the place usually using sulfide or other sprayer.

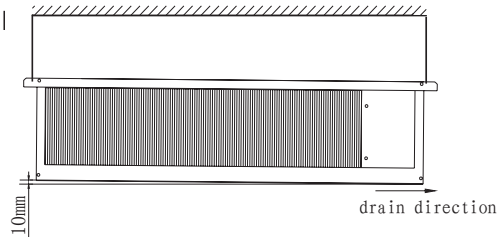
Installation of Indoor Unit

Installation of MCC-T Series Indoor Units

This type indoor units shall couple with duct working of air supply and air return; also can add the heating coil and heater.

Indoor Unit

- To check the accessories are ready.
- To install the hooker and ensure it strong enough to support unit.
- Install the unit and check it installed horizontally; ensure the slope of the drainage piping , as shown in below figure.



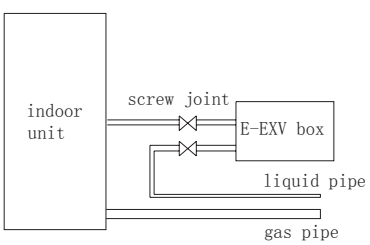
a. Ensure piping and air duct working are most efficient length and units shall be installed in the middle position of the room.
b. When installation of the indoor units, to ensure the distance shall be larger than 3m between return air inlet and heat exchanger.

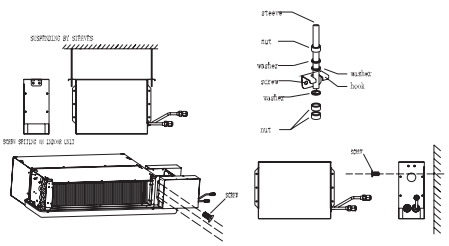
- To install the refrigerant pipe drainage pipe. Specification for the refrigerant pipe and drainage pipe, see the section “technical parameters” of Usage Instruction. Use the torque spanner to install the pipe to avoid damaging the copper tube and its joint.
- Do not use the damaged copper tube or dirty copper tube. To avoid long time expose to the air. Only get the concerned preparation ready, to start the open valves, connector, copper cup and cover etc..
- Some model of this series product need connect a E-EXV box out of the machine, as shown in below figure.

  Note: The E-EXV box contain a electric-expanding valve in it. If the indoor unit is installed in the bedroom, setting the E-EXV box out of the bedroom can efficient lower the noise of refrigerant flowing and expanding.

When install the E-EXV box, make sure the box vertical and set it fast. The distance between the E-EXV box and indoor unit could not exceed the length-limit of the expanding valve cable. The cable has a plug to connect the control box of the indoor unit.

There are some manners to install the E-EXV (The installation must be safe and solid, and the installation direction must be vertical):





Duct Working Installation

Air Supply Duct Working Installation

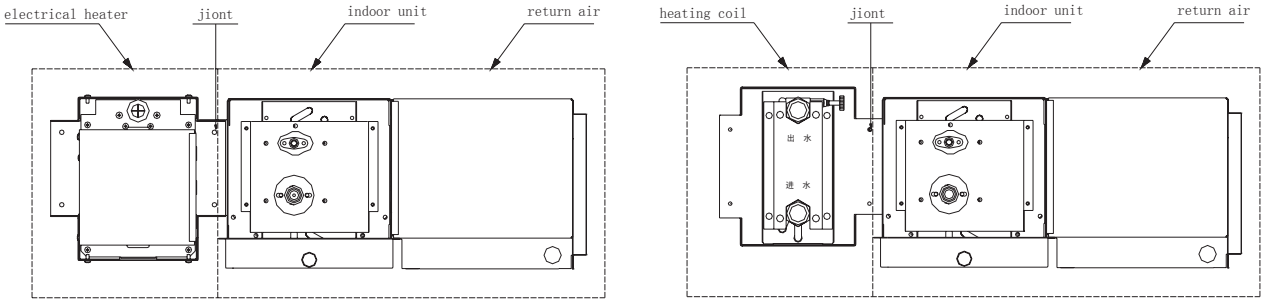
Two types of air supply duct working are for option: round and rectangle. Round air duct working can be connected up to the air supply inlet directly; while the rectangle one needs to be connected with a transition air duct to air supply inlet, and separate to the air diffuser. Pick up the selected air distributor or diffuser to meet the application requirements.

Air Return Duct Working Installation

To connect with return air inlet of indoor units, the other end connecting with return air inlet of ceiling. Make a sailcloth foldaway air duct, and strengthen it with 8# iron rope, in this way, the unit can be adjusted freely depends on ceiling height.

Insulation of Duct Working

Both air supply and return duct working shall be equipped insulation material with aluminum foil.



Electrical Heater and Heating Coil Installation

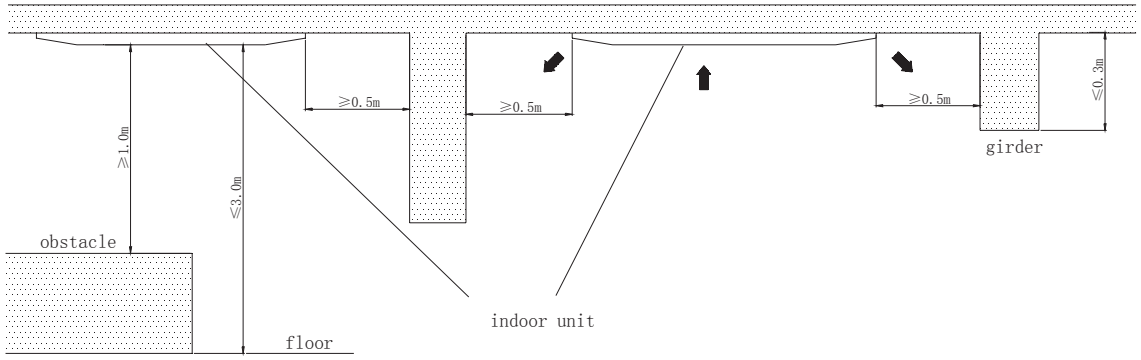
The way to install electrical heater and heating coil is almost the same, both need to connect to air outlet of indoor units as shown as followings:

Install MCK-T Series Indoor Unit

Notes:

a. Ensure the space for installation.
b. Ensure no barrier, and good ventilation is a must.

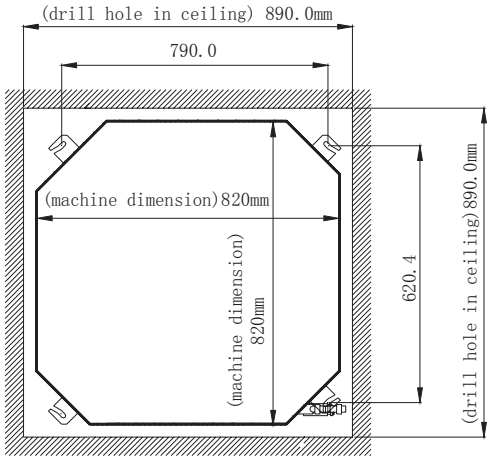
Please refer to the below figure:

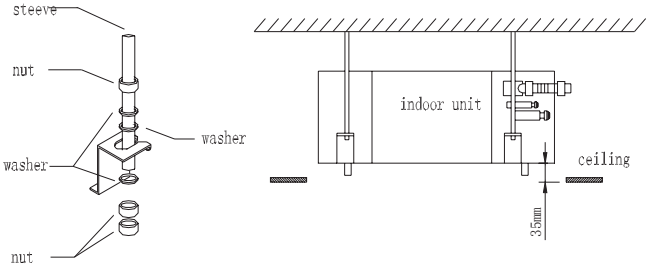


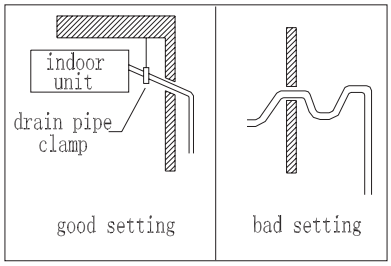
To refer to the above installation dimension to ensure the performance of units as much as possible.
The supports shall carry weight 4 times larger than the indoor units to avoid unnecessary vibration and reduce the noise.

Installation Instruction

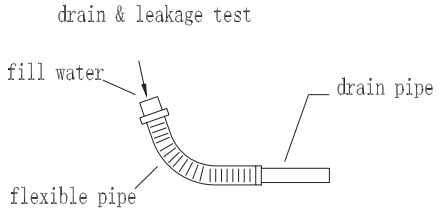
a. To keep indoor units from the source of heat and vapor.
b. To measure the position of fixing and drill hole in the ceiling and fix the units tightly.
c. The paper temperate shall be measure dimension before usage.
d. Ensure the paper temperate is the same dimension as hole dimension in the ceiling.
e. Before the completion of ceiling decoration, leave the paper temperate with the indoor unit.
f. Ensure the distance between the hang pole is 620.4mm×790.0mm.
g. To ensure use screw to fix the indoor units tightly.
h. To adjust distance between the bottom panel and ceiling is less than 35.0mm.
i. To check installation horizontally, and indoor units are fixed tightly without dropping off and vibration.







j. To cut the same shape of paper temperate in ceiling.
k. Drainage shall be smooth piping and slope installed.
l. To avoid drainage piping bent, shall be straight.
m. To install the drainage piping, do not exert too strong force.
n. It shall be installed diameter 20 flexible host to connect outside part of drainage piping, as shown as figure.



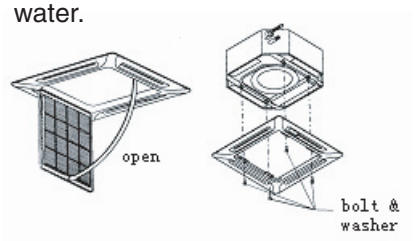
o. Drainage piping shall be covered with insulation material (thickness: 8.0mm polyphone plastic material), to avoid the dropping off of the condensing water.
p. To connect the drainage host and flexible host.
q. To fill in some water to piping to test the leakage.
r. After testing, to connect the other end of flexible host to indoor units.

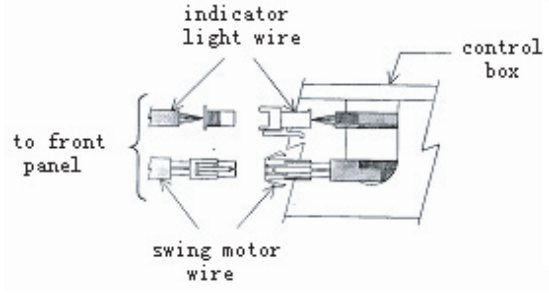
Note:
In this type of indoor units, a water pump is used to help to drain the condensing water, to install unit horizontally to avoid leakage of water and condensing water dropping off.

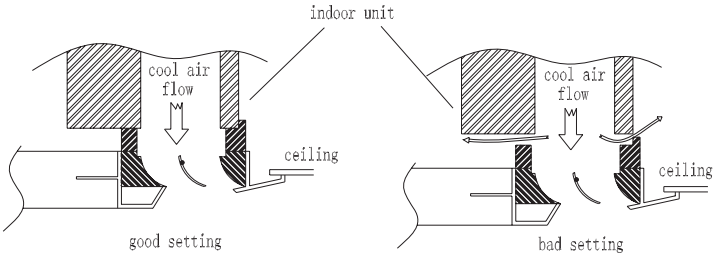
Installation of Front Panel

- To install the front panel, please check the piping connecting direction first. (Follow the direction of the piping connection direction.)
- To remove the paper temperate.
- To remove the air filter and grill of front panel.
- To use 4 screw bolt to fix the frame of front panel tightly.
- To connect the indicator light with indoor unit and fan swing motor with indoor units respectively.

Note:
Ensure the frame of the front panel is fixed tightly to avoid the leakage of cool and dropping of condensing water.

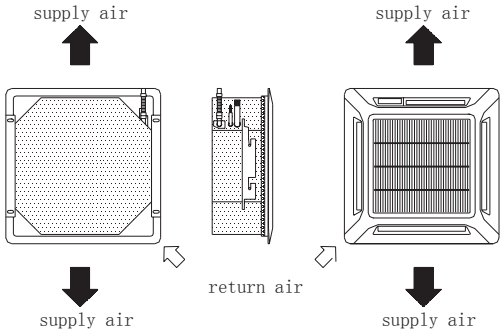




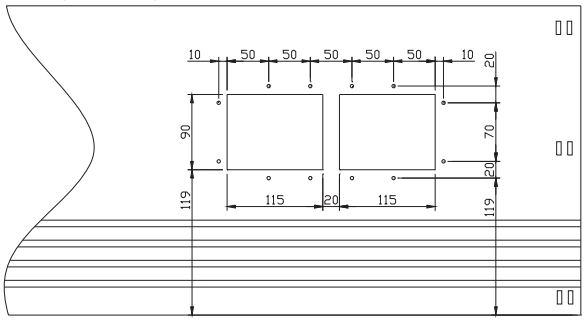


There are also the hole for fresh air and exhaust air for connection with outside in indoor unit, but as for air piping, and only be the other side of refrigerant piping connector.

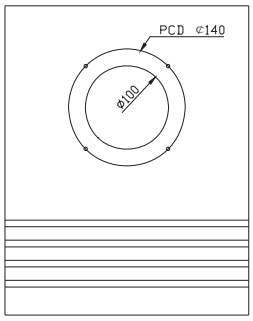
Return Air and Supply Air Direction



Drawings for piping connector and its dimension (unit: mm):



air outlet



fresh air inlet

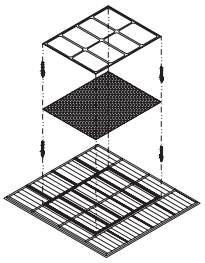
Notes:

- Do not close all air outlet of indoor unit when start to run the unit to avoid the frost of evaporator.
- To ensure the thickness of insulation material and no leakage allowed.
- Fresh air shall be less than 20%.

Air Tightness of Outlet of Supply Air

- Total 4 air outlet can be sealed by insulation material but more than 2 air outlet closed will cause abnormal operation of units.
- Open the front panel, to seal the air outlet in front panel.
- To ensure the length of insulation material is the same length of the air outlet.
- To extend the insulation material to cover the gas more than 10mm but not touch the air grill; there is no need to extend insulation material more than 10 mm.

Installation of Air Inlet Grill



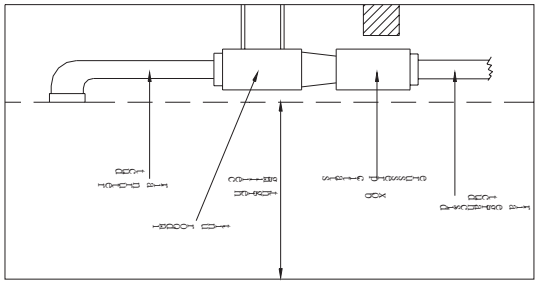
- Before installation of air inlet grill, to install the air filter.
- To ensure the right side to face the grill.
- Be careful to install the air filter in the frame of air filter supporter.
- To fix the filer with the front panel.
- To fix the grill and consider the service friendly to open the grill.

Installation of Drainage

a. Drainage piping shall be with slope 1/100.
b. To fix the drainage piping with long screw bolt.
c. After installation, to test the leakage drain to make sure it work.
d. Only in cooling mode, there will be detect of drainage status.

Installation of MDB-T Series Indoor Unit

To mount the MDS050~060T in ceiling. With the air outlet flange close to the unit bottom, when the unit is mounted in ceiling, the piping is simple and decreases the requirement for room height. After the installation, only the air inlet/outlet is exposed, as shown below.



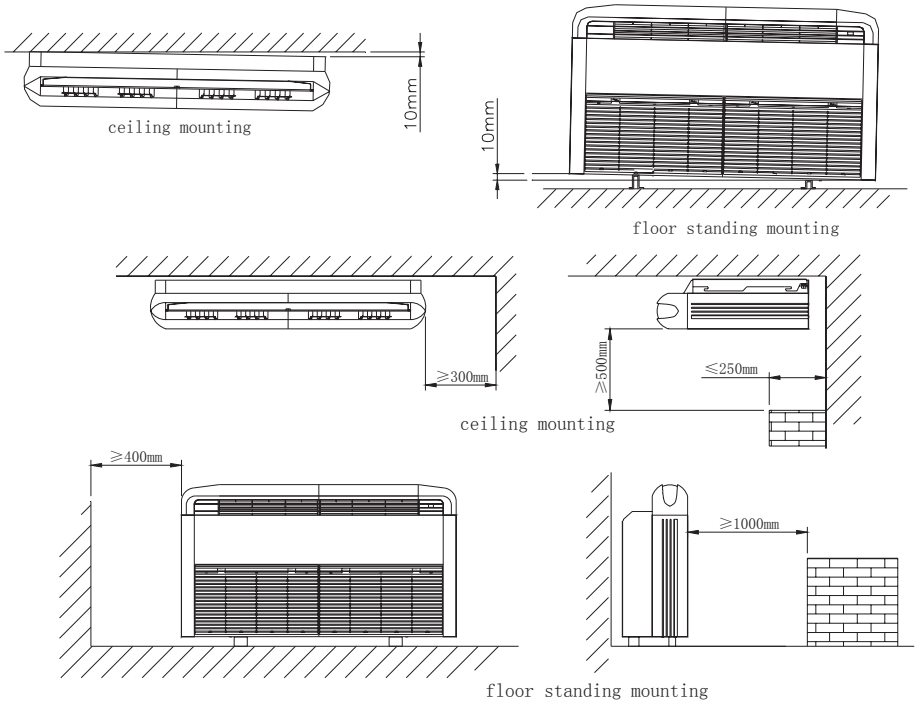
- To check the accessories are ready
- To choose the location for installation
  Make sure it is easy to connect cables and pipes. Select a place where needs shorter air pipe and fewer connecting pipe work and ensure the building is with enough strength, ascertain the pole location and adjust it to keep the unit horizontally, and examine safety of the suspending.
- To install the hook
  Make sure to fix the hook, and the top suspending part is strong enough to bear the unit weight.
- To install the indoor unit
  To fix the pole location, examine if it is in the same level with the unit, and check if the suspending panel is stable; make sure there is a slope oriented to the drainage direction. Pay attention that the distance between the return air outlet and the heat exchanger inlet shall not be less than 3m.
- To install the refrigerant piping
  - If units expose to air more than 15s, units shall be vacuumed firstly. If the connecting piping is not prepared for indoor unit, do not open sealed parts (valves, joints, rubber, plastic gasket and copper cap).
- Duct working design
  Well designed duct working can reduce noise level effectively. When doing this, please consider the internal air pressure drop shall be equal to ESP, otherwise, air flow may be too big or too small, and cause the unit failure. It can be solved by adjusting the fan speed to make them in balance (such as adjusting the air speed of the diffuser).
- Installation of drainage piping
  a. Slope is required as 1/100.
  b. To use suspending bolt to fix the long drainage piping.
  c. After installation, to run the leakage test is necessary.
  d. Only in cooling mode, there is a need to detect the status of drainage.

Installation of MCM-T Series Indoor Unit

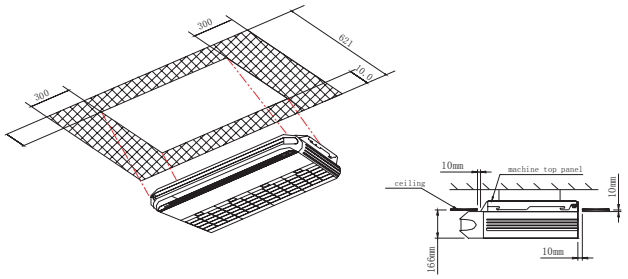
To Check the Accessories are Ready

To Install the Indoor Unit

There are two types of installation. Make sure the hook can bear the unit weight in ceiling mounting; a slope for the drainage direction is a must both for ceiling/floor standing mounting; ensure there is enough space for maintenance around the unit.
There are two type of installation: vertical floor standing or horizontal ceiling mounting:

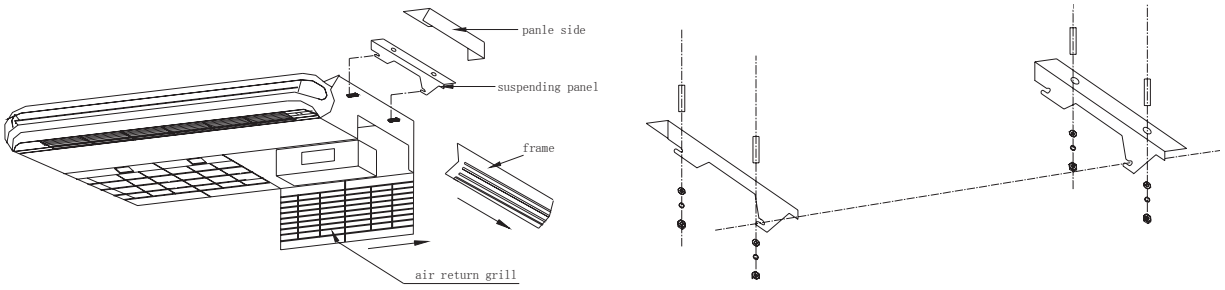


If the indoor unit is semi-concealed mounted in ceiling, reserve holes in ceiling to ensure enough space for mounting and maintenance, as shown below:

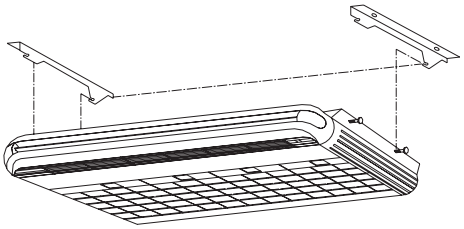


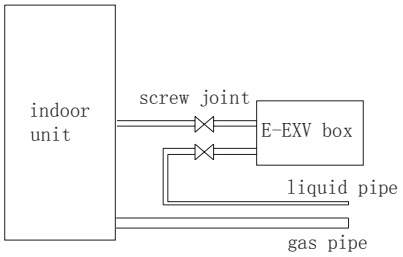
Horizontal Ceiling Mounted

1. To remove the air return grill, frame, side panel and suspending panel as shown as below:



2. To fix the suspending panel with screw bolt as shown as above right figure.
3. To hang the unit to the suspending panel and fix screw bolts, after installation of refrigerant pipe and drainage pipe, install the return air grill and frame, as shown below left figure:

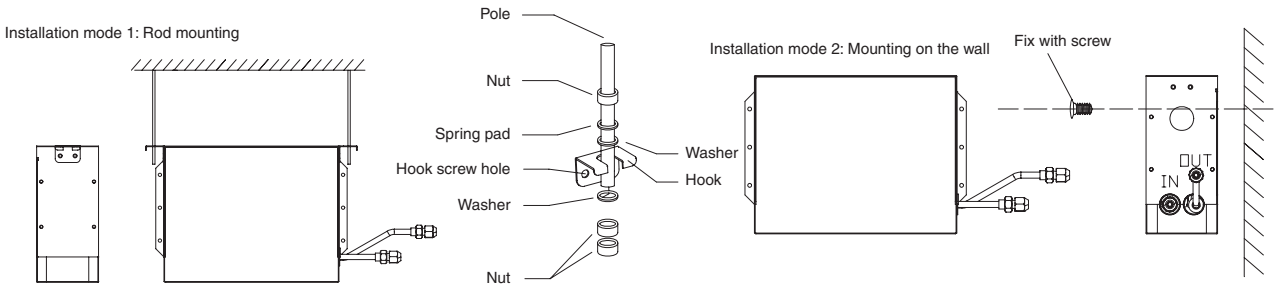




- Install the E-EXV box: All models of this series product need connect a E-EXV box to finish the piping installation, as shown on right figure:

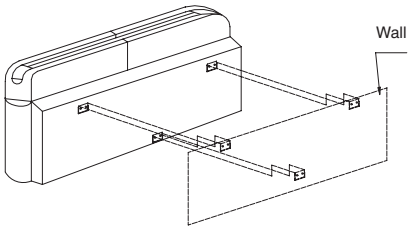
Notes:

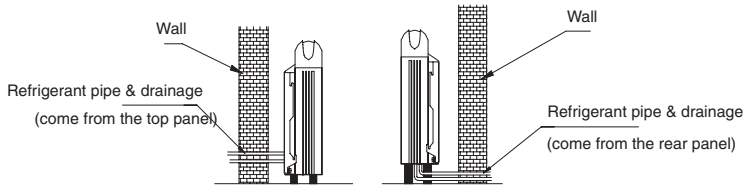
- The E-EXV box contains electric expansion valves, which needs to be mounted in proper place on the liquid piping. When installing the E-EXV box, make sure the box vertical. The E-EXV box and the indoor unit could not exceed the length-limit of the electric expansion valve cable, as shown above right figure.
- There are some manners to install the E-EXV box (the mounting must be fixed and safe, and the direction must be vertical).



Vertical Floor Standing

1. To remove the air return grill, frame, side panel and suspending panel as shown below:
2. To install the unit supporter and wall suspending panel, as shown below left figure:





3. To install the refrigerant and drainage piping as shown above right figure;
4. To install the electrical expansion valve as same as the horizontal installation;

Installation of Drain Piping

a. Slope is a must and shall be 1/100, try to drain in a positive slope.
b. To fix the drain piping to use screw bolt.
c. After installation, to run the water leakage test is a must.
d. Only in cooling mode, there is a need to detect the status of drainage.

7 Troubleshooting

If the Followings Unit Malfunction Occurred, Please Follow the Below Simple Checking Step to Fix :

Symptom	Analyses	Solution
Compressor stop and fan work normally	Indoor temperature is higher (heating) or lower (cooling) than setting temperature	Re – set up the temperature
	When heating and defrost mode, indoor unit is just running	Waiting for 10minutes
Units do not work	Power is not on	Check and connect the power
	Set up the re-start function	Wait or cancel timer on
	Fuse broken in main power supply	Replace the fuse
Cooling or heating not enough or too much	Air filter too dirty	Clean or replace the filter
	Return air barrier	Remove the barrier
Remote controller unreadable	Low battery	Replace the battery
	Wrong installation of battery	Install properly
Condensing water in front panel	Humidity too high	Dehumidify
	Setting temperature too low	Set up the higher indoor temperature

- If user can not fix the problem, please contact the local service agent for assistance, meanwhile record the malfunction code by remote controller and indication light of units self-checking function;

Fault Codes for MDSA/B Series

Item	Code	Description	Item	Code	Description	Item	Code	Description
1	E0	System malfunction	23	F8	4wv malfunction	45	16	Sensor broken(slave TH6 inlet coil 3#)
2	E1	Sensor broken(TH1 discharge temp)	24	F9	Refrigerant leakage	46	17	Sensor broken(slave TH7 mid coil 3#)
3	E2	Sensor broken(TH2 inlet coil 1#)	25	FA	Controller storage malfunction	47	18	Sensor broken(slave TH8 ambient temp.)
4	E3	Sensor broken(TH3 mid coil 1#)	26	FB	Water pump(indoor drain pump)	48	19	Sensor broken(slave TH9 outlet coil)
5	E4	Sensor broken(TH4 inlet coil 2#)	27	FC	Indoor and outdoor communication malfunction	49	1A	Sensor broken(slave TH10 subcool outlet)
6	E5	Sensor broken(TH5 mid coil 2#)	28	FE	Master and slave communication malfunction	50	1B	Sensor broken(slave TH11 subcool suction)
7	E6	Sensor broken(TH6 inlet coil 3#)	29	H0	Digital comp overload	51	1C	Sensor broken(slave TH12 suction)
8	E7	Sensor broken(TH7 mid coil 3#)	30	H1	Fixed comp1 overload	52	1F	Emergency run
9	E8	Sensor broken(TH8 ambient temp..)	31	H2	Fixed comp2 overload	53	20	Outdoor storage malfunction
10	E9	Sensor broken(TH9 outlet coil)	32	H3	Fixed comp3 overload	54	27	Ambient temp.. exceed the limit
11	EA	Sensor broken(TH10 subcool outlet)	33	H4	High pressure too high	55	28	4wv malfunction
12	EB	Sensor broken(TH11 subcool suction)	34	H5	Sensor broken, high pressure	56	29	Refrigerant leakage
13	EC	Sensor broken(suction)	35	H6	Discharge temp. too high	57	30	Digital comp overload
14	EF	Emergency run	36	L0	Super heat too low	58	31	Fixed comp1 overload
15	F0	Outdoor storage malfunction	37	L1	Low pressure too low	59	32	Fixed comp2 overload
16	F1	Sensor broken(indoor inlet coil)	38	L2	Sensor broken, low pressure	60	33	Fixed comp3 overload
17	F2	Sensor broken(indoor mid coil)	39	10	System malfunction	61	34	High pressure too high
18	F3	Sensor broken(indoor outlet coil)	40	11	Sensor broken(slave TH1 discharge temp.)	62	35	Sensor broken, high pressure
19	F4	Sensor broken(indoor return air)	41	12	Sensor broken(slave TH2 inlet coil 1#)	63	36	Discharge temp. too high
20	F5	Sensor broken(indoor supply air)	42	13	Sensor broken(slave TH3 mid coil 1#)	64	40	Super heat too low
21	F6	Indoor and controller communication malfunction	43	14	Sensor broken(slave TH4 inlet coil 2#)	65	41	Low pressure too low
22	F7	Ambient temp. exceed the limit	44	15	Sensor broken(slave TH5 mid coil 2#)	66	42	Sensor broken, low pressure

Indication Light Twinkle Related to Malfunction Code:

Type	Heat	Fan	Dry	Cool	Type	Heat	Fan	Dry	Cool	Type	Heat	Fan	Dry	Cool
Sensor, outdoor	F	F	F	F	Pump, indoor	F	F	On	F	Pressure high/low	F	F	Off	Off
Sensor, indoor	F	F	F	On	Over load, compressor	F	F	On	On	Communication	F	off	F	F
System failure	F	F	F	Off	Pressure sensor, outdoor	F	F	On	Off	Others	F	off	F	On

8 Servicing and Maintenance

Warning

Before maintenance service, please shut off the power supply and stop indoor andd outdoor units

Indoor Unit Maintenance

Part	Maintenance checking step	Times/month
Air filter	1. Open the grill 2. Take out the air filter 3. Use brush to clean the air filter with below 40°C water	1
Front panel	1. Get rid of the dust and dirt by using cloth and detergent, clean the panel	1
Drain pan and host	1. To check the drain pan and host are clean or not, if it is dirty, clean it 2. To check there is no barrier for the condensing water flow out	3
Evaporator	1. To clean the dirt of fins 2. To clean any barrier for indoor air flow	1
Electrical part	1. To check the running ampere and voltage is normal or not 2. To check the electrical connection is fixed or loose	12

Outdoor Unit Maintenance

Part	Maintenance checking step	Times/month
Outdoor fan	To check the noise level	1
Outdoor condenser	1. To clean the dirt of fins 2. To remove any barrier which prevent the air flow	1
Compressor	Compressor running noise and vibrations	1
Electrical part	1. To check the running ampere and voltage is normal or not 2. To check the electrical connection is fixed or loose 3. To check the controller in normal working conditions	1

©2003 McQuay International +1 (800) 432-1342 www.mcquay.com

While utmost care is taken in ensuring that all details in the publication are correct at the time of going to press, we are constantly striving for improvement and therefore reserve the right to alter model specifications and equipment without notice.
Details of specifications and equipment are also subject to change to suit local conditions and requirements and not all models are available in every market.